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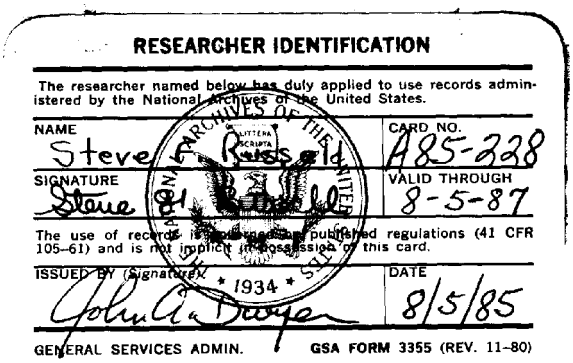
Lewis and Clark
Lolo Trail Precision Survey

Summary of Research Results

End of the Trail

STEVE F. RUSSELL, PH.D., P.E.
Associate Professor
Iowa State University

2005



RESEARCHER IDENTIFICATION

The researcher named below has duly applied to use records administered by the National Archives of the United States.

NAME: Steve F. Russell — CARD NO.: A85-228

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The use of records is governed by published regulations (41 CFR 105–61) and is not implicit in possession of this card.

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GENERAL SERVICES ADMIN. GSA FORM 3355 (REV. 11–80)

Cover Photo

"End of the Trail"

Photo by Steve F. Russell

Lolo Trail System National Historic Landmark Photo

Steve F. Russell, Historic Trails Research, Ames, Iowa

Theo Peterson. Theo was a Computer Engineering student at Iowa State University and was my survey assistant for the summer of 2002. He was from Minnesota and liked camping and hiking. This location was on a high ridge point called Bowl Butte, Idaho.

2002-08-10-07.jpg

Lolo Trail System National Historic Landmark Photo

Steve F. Russell, Historic Trails Research, Ames, Iowa

Matt Battani. Matt was my survey assistant for the summer of 2003. It was his first experience at primitive camping and hiking, It became a passion for him. This location is where the Lewis and Clark Trail crossed Lolo Creek, Idaho. And, yes, we had to wade all the water crossings.

2002-08-10-07.jpg

Lolo Trail System National Historic Landmark Photo

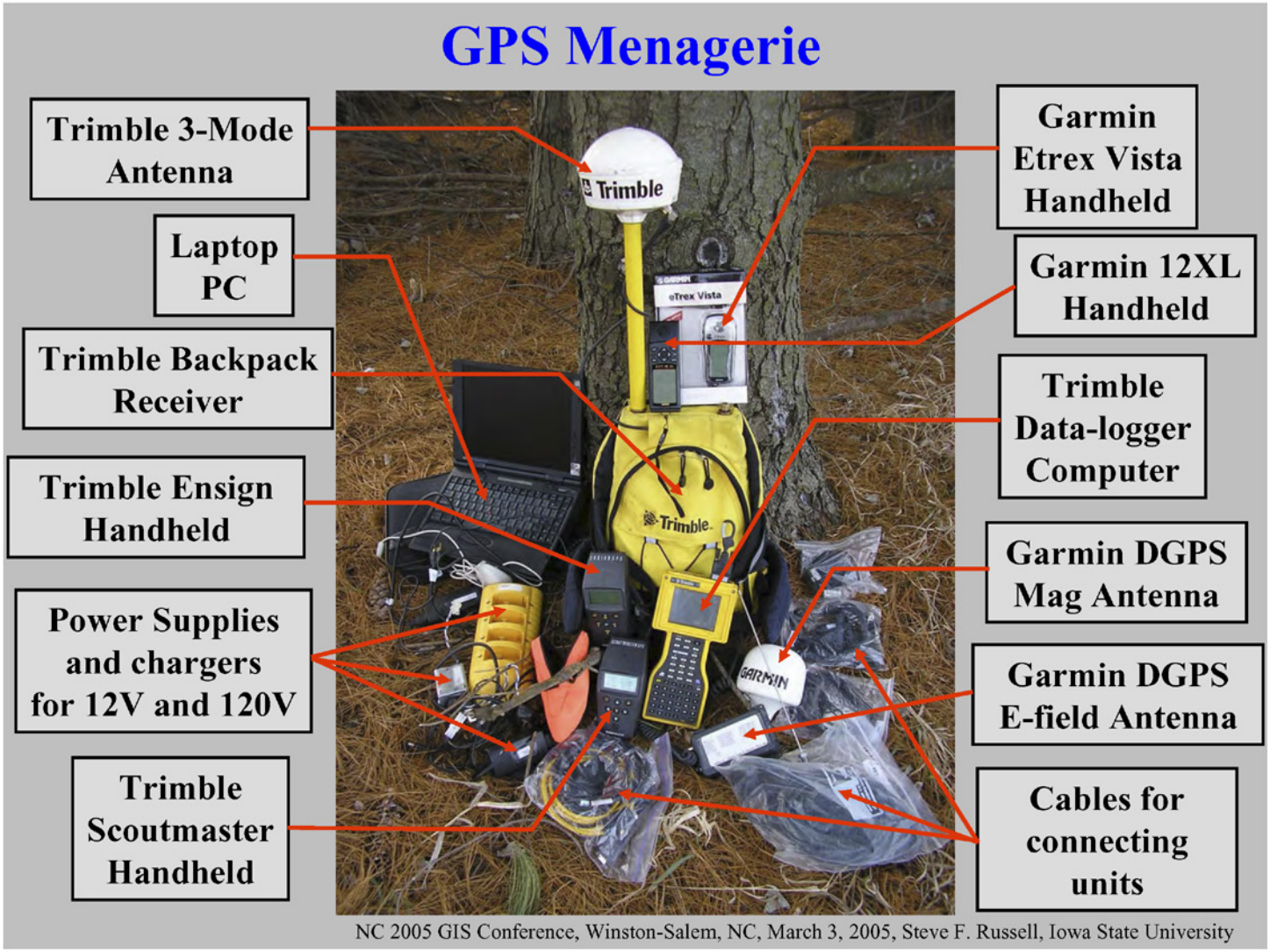
Steve F. Russell, Historic Trails Research, Ames, Iowa

Steve F. Russell. We were "out in the sticks" during this survey. In the evening, I had to convert the trail gate of my 1976 Ford F250 4X4 into an office desk and check the quality of our survey work that day. If there were any problems with the data set, we had to go out the next day and repeat the survey. Our only source of power was the Ford's batteries, (we had dual batteries). We used it for lighting and charging of all the equipment. Note the large backup lights. They were necessary for long backups in the dark.

2002-08-04-22.jpg

Lolo Trail System National Historic Landmark Photo

Steve F. Russell, Historic Trails Research, Ames, Iowa



Survey Equipment. We needed a lot of equipment in the survey to get the accuracy we were trying to achieve. The Trimble Pathfinder Pro ERS was the latest and greatest in stand-alone survey equipment in 2001. The State of Idaho funded the survey and the purchase of the Trimble equipment. The survey assistants had to lug this equipment up and down mountains, through heavy brush and windfall trees, and across rivers and creeks.

Lewis and Clark
Lolo Trail Precision Survey

Summary of Research Results

Second Edition
January 15, 2005

STEVE F. RUSSELL, PH.D., P.E.
Associate Professor
Iowa State University

Historic Trails Press
Ames, Iowa

Lewis and Clark: Lolo Trail Precision Survey
Summary of Research Results

by Steve F. Russell

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Acknowledgments

I wish to gratefully acknowledge the Lewis and Clark Bicentennial Assistance Grant program for the State of Idaho and Keith Petersen, State Bicentennial Coordinator, for their financial support of the precision GPS unit, per diem expenses, and the salary of the survey assistants. I also want to thank the Idaho State Historical Society and Idaho State Historian, Larry Jones, for their encouragement of this work and their administration of the grant.

Thanks also go to the outstanding survey assistant work of Theo Peterson (2002) and Matt Battani (2003). They endured the heat, cold, torturous hikes, camp food, tent camping, animals, and the isolation of the Lolo Trail for weeks on end without complaint. They also took responsibility for operation of the precision GPS unit which freed me to push through the heavy brush ahead and locate trail tread I had not visited in many years.

Sam Wormley deserves a huge thanks for helping with the preliminary survey planning and the selection of the Trimble Pathfinder Pro XRS precision GPS unit. His extensive knowledge of GPS and its survey technology were invaluable.

Jim Caswell, former Clearwater National Forest Supervisor, should be thanked by all of us for his major decisions to preserve these historic trails and prevent further opening and development of the trail tread. Thanks to him, we have wonderful self-discovery opportunities all along the old trails.

Finally, many thanks also to Dr. Jim Fazio, Linnea Keating, Deanna Riebe, and Dr. Joe Mussulman who helped me with encouragement, knowledge, map resources, and a sense of the importance of this work.

Preface

In the fall of 1984, I read an article about Lewis and Clark and the expedition that explored the upper Louisiana purchase at the request of Thomas Jefferson, the President of the United States. I had no knowledge of the expedition or where it traveled but wondered about it since I had grown up in north central Idaho and western Montana.

To gain a knowledge of the expedition, I visited the Iowa State University library where books written by Thwaites, Wheeler, and others were waiting to educate me. The biggest thrill of my quest came when I opened the expedition map of the Bitterroot Valley by William Clark. I instantly recognized the geography he was trying to communicate! Further investigation made me realize that I had lived most of my young life literally on their trail. It went through the front yard of Lochsa Lodge where I had spent many summers growing up. It also went through the back pasture of the place I had lived for four years, south of Stevensville, Montana.

Those faint, dotted traces of a trail on the Clark maps made me wonder: Did any remnants of that old trail still exist? Could it be found if it did? At this point, I decided that on my next trip to Washington, D.C., I would go to the National Archives to see if other records existed about this old trail. The first visit was in 1985. Four visits later, I felt confident that I had discovered all of the old maps and journals that existed on the old trails they had traveled.

The summer of 1986 was my first trip into the field to find old segments of trail tread. My father had grown up in Weippe, Idaho, and had traveled the Lolo Trail and surrounding area, so we set out together that summer to "discover" the trail. Traveling the Lolo Divide Road (now called the Lolo Motorway), we began looking for segments of the old trail. Dad remembered some of the landmarks and we quickly found many pieces of old trail near the Motorway. He also remembered the "old timers" talking about Indian trails crossing the ridges and going down to the river. Discovery was exciting and much film was used to take my first photos of the "trail" - but something was unsettling about our initial "discoveries." First, the tread seemed much too clean to not have been used for more than a century. Second, we kept seeing small aluminum tags stapled to trees that declared the trail to be the "Nee Mee Poo" trail. I consulted the small book by Ralph Space, *The Lolo Trail*, and came to realize that there were at least two intertwined trails across these mountains: one followed by Lewis and Clark in 1805-06, and a trail constructed by the federal government in 1866. This realization launched me on a research course that would last for over 17 years.

Taking first things first, I knew that there would be confusion between the 1806 trail tread and the 1866 trail tread so I began a major research effort into learning the complete location of the 1866 trail. This was an easier path to success since it was much better documented and had been used by the Forest Service between 1907 and 1934. It would turn out that its tread was well worn and engineered to a wagon road grade with the corresponding locations and switchbacks of the wagon roads of its day. Following and documenting this trail took several summers. In the meantime, I kept documenting a "fainter" trail tread that sometimes joined, but was usually separate from, the 1866 tread. This older tread was indeed the Northern Nez Perces Trail as followed by Lewis and Clark.

During the discovery phase of this research, I read no other research accounts of the trail location or any popular literature. The goal was to have a completely independent effort and record of a scholarly approach to documenting the actual trail location. I had no preconceived notions about where the trail went or how difficult it was for horses. It did not follow "meadow-to-meadow" which was the common wisdom of the time. I also did not assume the original Lewis and Clark journals to be totally accurate in their courses and distances or in their descriptions of geographic landmarks. Not reading literature such as John Peebles or

Stephen Ambrose was a difficult sacrifice.

On August 7, 1989, I met three people at Beaver Dam Saddle who worked for the Forest Service. They had discovered a segment of the 1866 trail and wondered what it was. I got out my topographic maps and explained my research to them. A discussion ensued in which they said that the Forest Service position was that there was no existing trail - only a "route." This opinion would persist for several years until I could sufficiently convince the USFS heritage resource people that the trail did exist and that I had found it. In the years that followed, the Forest Service began searching for a trail to open up for recreation purposes. With the help of many volunteers and the "Take Pride in America" program, several miles of "Lolo Trail" were opened to horse and hiker. They opened the 1866 trail but not much of the 1806 trail.

In the early 1990s, my work on the 1866 trail gradually shifted to the 1806 trail and the tedious work of documenting the exact location of the tread began. In the early years, I documented the tread location using topo map, compass, pace counter, and barometric elevation. This allowed me to place the tread on a topo map, but the accuracy was only within 100-200 feet. Eventually, a series of low-cost GPS units were used to take data to an accuracy of 20-60 meters. This improved over the years to about 10-15 meters with the termination of selective availability (SA) and the implementation of U. S. Coast Guard DGPS beacon signals for the Lolo Trail area.

In the spring of 1999, I finally completed a series of maps documenting the 1806 trail location but did not publish them because of heritage resource concerns. Interest in Lewis and Clark campsite excavation for archeology did not appeal to me so I elected to maintain the information as confidential. During the years after 1999, I started using ARCVIEW to document the 1806 and 1866 trails and caught up on my documentation of the various journals that applied to the Lolo Trail.

Finally, in the summer of 2002, I began a precision survey of the 1806 trail followed by Lewis and Clark. A high-precision GPS unit, salary for a survey assistant, and per diem were provided by a grant from the Lewis and Clark Bicentennial Assistance Grant program for the State of Idaho. The grant was administered by the Idaho State Historical Society. I made in-kind contributions of all my research knowledge, post processing of the survey points, converting data to ARCVIEW shape files, and survey labor for two summers. The survey of a total of 104 miles of trail from Lolo Pass to Weippe Prairie took a total of 65 days spread over the summers of 2002 and 2003. The planning of the work took approximately 170 hours. The post processing of all the data took approximately 450 hours spread out over two-plus years.

This work should be used to update any existing records for the national historic trail or national historic landmark.

Steve F. Russell
Ames, Iowa
January 15, 2005

Introduction

Since the late 1800s, historians and scholars have wondered about the exact trail location followed by the Corps of Discovery under the command of Lewis and Clark. In 1866, George Nicholson, a young civil engineer with the Lewiston and Virginia Wagon Road expedition surveyed the Lolo Trail for a wagon road route over the rugged Bitterroot Mountains. Nicholson wondered at that time about the Lewis and Clark Trail. When Elliott Coues (§1) and Reuben G. Thwaites (§2) were preparing the Lewis and Clark journals for the centennial celebration of the expedition, they both corresponded with Nicholson about his opinion of the Lolo Trail route. He prepared maps and personal notes which have been invaluable in locating the actual trail tread. Also during the centennial, Olin D. Wheeler (§3), a Minnesota historian, did some field explorations to determine the location of the old trail. All of these efforts were ineffective in locating the actual trail route because of the lack of good mapping tools and very limited field work.

Later efforts to locate the old trail produced better results but were still not of adequate accuracy to pinpoint the trail location for exploration and historic preservation purposes. The most notable of these efforts were the work of John (Jack) Harlan (§4), John Peebles (§5), and Ralph Space (§6). Harlan located some of the trail in the 1920s and wrote several newspaper articles of its history as linked with the Nez Perce people. He was a key participant in the placement of memorial plaques along the trail. Peebles indicated the trail and campsites on large-scale maps in a publication for the Idaho State Historical Society. The map scale he chose was too large to accurately find the trail on the ground, consequently it is difficult to judge how much of trail he actually discovered, if any. Space followed on the work of Peebles and made an extensive effort to locate the campsites along the trail. In my meetings with him in the 1980s, he told me he never really attempted to locate the actual trail - just the campsites.

When I began this research effort, all indications were that no one had ever published any information on the actual trail location to an accuracy where the actual trail tread could be followed and preserved. The effort to locate all existing trail tread segments across the Lolo Trail and accurately document them took over 17 years.

The map set that is the main part of this report is really only a minor part of the research results. There is a wealth of additional information that will be published in a later book and in specialized technical reports.

The methods I used to research and document the trail tread and campsite locations were first applied to the Lewis and Clark Trail during the preparation of trail maps for the 1989 Montana Centennial celebration. These map sets are available at the Ravalli County Historical Society Museum in Hamilton and at the St. Mary's Mission Museum in Stevensville. The methods were further refined and explained in the publication for the Lost Trail Pass workshop in 1997 (§7). I provided large scale maps for a coffee table book published in 2001 (§8).

For the first time since 1806, we now have an accurate documentation of the Nez Perce trail followed by Lewis and Clark between Lolo Pass and the Weippe Prairie.

Several abbreviated terminologies have been adopted to make the reading flow easier.

These are defined as follows:

§ - Symbol for an Endnote in the text.
1805 Trail - Specifically the trail followed by the Corps in 1805. Most of it is the same as the 1806 trail.
1806 Trail - Specifically the trail followed by the Corps in 1806. Where it and the 1805 trail are the same, the 1806 Trail designation is used.
1866 Trail - The government trail constructed to a wagon road grade. This trail we now call the Bird-Truax Trail. It was the Lolo Trail legacy provided by the Virginia City and Lewiston Wagon Road Expedition.
BTT - Abbreviation for the Bird-Truax Trail - the 1866 trail.
Corps - The Corps of Discovery under the command of Meriwether Lewis and William Clark. The term will be used to refer to all the military men, York, Sacajawea, Pompy, and Seaman.
DRG - Digital Raster Graphics, the computer format for 7.5 minute topographic maps produced by the U. S. Geological Survey.
LCT - The Lewis and Clark Trail. This will be used on the maps as a generic term for the 1805 and 1806 trails when making a distinction is unnecessary.
USFS - U. S. Forest Service.

Research Methodology

Only original journal and map sources were used in this research. Secondary sources such as Thwaites, Wheeler, Peebles, and Space were not used. This was done to ensure that this research would be a completely fresh approach to locating the actual trail tread.

Custom-made computer analysis tools and geographic information system (GIS) tools were extensively used. These were key to predicting where the trail was so it could be discovered during summer field work. Computer work and map preparation was done during the winter months back in Iowa. In the summers, around July 4th when the snow had left the Lolo Motorway, field explorations were made along the Lolo Trail corridor. Repeated improvements and updates of the discovered locations and predicted locations were made every year. This repetitive process steadily refined the quality of the trail and campsite locations.

In the beginning, the tread location was documented using a compass, pace counter, and barometric altimeter. These crude tools were the same as those available in the 1800s. As low-cost GPS units became available (§9), they were used to improve the accuracy of the GIS data. GIS tools such as ARCVIEW (§10) and TOPO! (§11) also became available as the research progressed and paper maps were abandoned in favor of computer database maps. Finally, a high-precision GPS unit (§12) was used to document the tread location to an accuracy of 1-3 meters.

About 70,000 waypoints were taken between Lolo Pass and Weippe Prairie. These waypoints had to be post-processed to account

for multiple surveys of the same trail segments and temporary losses of the beacon signal. The WAAS and Satellite beacon signals were found to be too unreliable when the forest canopy obscured the line-of-sight between the Pathfinder and the satellite. Several attempts were made to use these beacon signals but usually the Pathfinder had to record the data points as non-differential. The trail data was retaken with the Coast Guard beacon signal which was found to be fairly reliable. However, temporary losses of the beacon did occur and resurvey was necessary a few times each day.

Map Descriptions

Map-1 is a large scale map used to show the general location of the Lewis and Clark Trail relative to the cities and major landmarks of the area. All areas of the trail can be accessed from U.S. Highway 12. Map-2 shows the USGS 7.5 minute topographic quads that are necessary for plotting the trail location. Map-3 is an index of all the maps of quad segments used to plot the trail on USGS quads.

Maps LCT-Survey-01 through LCT-Survey-29 document the trail tread with topo quad segment maps of the trail and campsite locations. In the black and white version of this document, the Lewis and Clark Trail tread is shown as a dotted line and marked LCT. To avoid confusion during self discovery and walking the trail, the tread of the 1866 trail is shown as a thinner dashed line and marked BTT. The BTT dashed line is not printed wherever it significantly overlaps the LCT at this map scale. In the color version of this document, the LCT is red and the BTT is blue. Campsites are marked with a circle and flag, much the same as the marking used by Clark. They also are marked with a date and a modern name. Sections of remarkably well-preserved tread that can be found and hiked are marked with a “star” symbol. Each map also is labeled with its USGS topo quad name and DRG designation.

Maps LCT-Survey-01 through LCT-Survey-26 document the westbound route in 1805 and nearly all of the eastbound route. Maps LCT-Survey-27 through LCT-Survey-29 document the eastbound route from Wendover Ridge to east of Rocky Point.

Some campsites have alternate names. These are given in the text facing each map page. An example of the notation used for equivalent names is:

Collins Creek Camp <=> Pheasant Camp

Facing each map page is a page of comments about that section of the trail. Some of the page has been left blank so that self-discovery notes can be written directly in the book. Be sure to include dates, names, discoveries, and experiences.

Map Inaccuracies

A trail location is determined in time and space. Over time, the tread location changes in subtle ways. The reader might imagine that communicating and documenting the trail location is simply a matter of walking it with a precision GPS survey instrument and recording the position readings - if only it were this simple! It is true that, with great effort, stand-alone GPS accuracy of 1-3 meters can be achieved in nearly all places along the trail. Even greater accuracy can be obtained by doing a differential precision survey. However, these electronic surveys are merely a long list of numbers inside a computer and don't communicate any meaningful information to a human user. So, what is the next step?

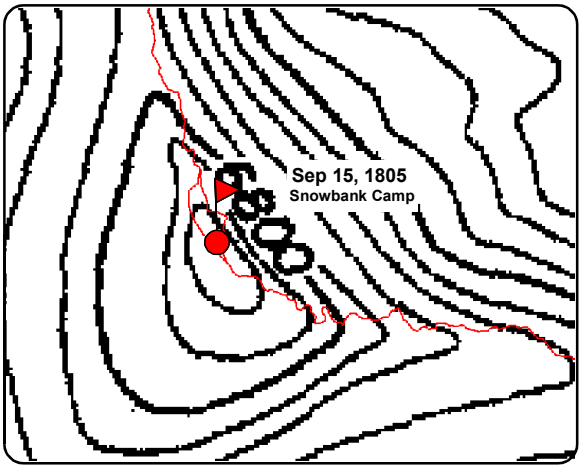


Figure 1. Precision GPS data plotted on a USGS topographic map. The map has topographic distortion which puts the ridge line too far south and west.

The next logical step is to plot the GPS data on a map for convenience of viewing. This is satisfactory up to a point but even small errors in topographic maps start to become apparent when using the precision data provided by GPS. When large map scales are used, neither the accuracy of the map nor the GPS is much of a factor. Map errors cannot be readily perceived and any low-cost GPS will give adequate data for such maps.

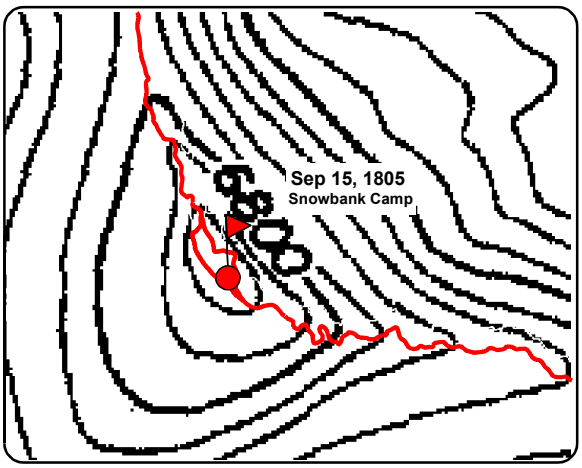


Figure 2. Trail plot distorted to match the topographic distortion of the map at Snowbank Camp.

It is when the map scale becomes small that errors are apparent. During the precision trail survey, it became apparent that the 7.5 minute topographic map databases could have topographic errors as large as 50-100 meters. For example, the trail might go up the left hand side of a narrow ridge but a plot on the topo map would show it going up the right hand side. In other cases, the map might show the trail crisscrossing a stream when, in fact, it never crosses it. The figures on this page illustrate this distortion.

Figure 1 is an example of the Lewis and Clark Trail going westward up the ridge to Snowbank Camp (Sep 15, 1805). The fine line shows the precision GPS data plotted in the coordinate system of the digital map. The location of the trail implies that it goes up the north side of the ridge. The campsite is also shown as being toward the north side of the top of the peak. Notice that, at this scale, the squiggles and switchbacks of the trail can be discerned.

Figure 2 shows the same section of trail where the tread location has been distorted to fit the distortion in the map. This was possible because the author took detailed notes of the trail location independent of GPS. For someone unfamiliar with the trail, this type of "correction" would not be possible. In this case, the correct location of the trail is shown as going up the south side of the ridge. Although not as accurate as the GPS plot, a map user would prefer that the trail tread location match the distorted topographic map. However, this is a very time consuming process so, for the maps at the scale used in this atlas, the trail locations are based on the true GPS plot relative to the geo-referencing of the base map and have not been distorted to account for inaccuracies in the topographic maps.

The other drawback to plotting precision trail location data on maps is that, in order to show the true "ground track" of the trail, one must use such a small map scale that literally hundreds of maps would be needed to plot the Lolo Trail.

Many of the original USGS topographic maps show incorrect campsite locations. These are noted on the facing page of each map.

Photo 1. Old ceramic sign east of Swan's Spring on Spring Mountain. The year after this photo was taken the sign had been removed. Who and why are unknown.

Photo 2. Clark's first campsite on Hungery Creek, September 18, 1805. This flat is large and fairly dry in the summer. The rock slide on the left can be used to identify the location. The creek is to the right, just out of the photo.

Photo 3. Beautiful waterfall on Hungery Creek near the mouth of Yew Creek. The trail is on the north sidehill above the creek.

Photo 4. The trail going around a rocky south-facing hillside west of Sherman Saddle. The horse traffic gouged a trail in the hillside but the most noticeable feature is how the rocks have been broken into smaller sizes.

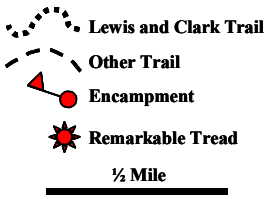
Photo 5. The 1866 Bird-Truax Trail with a tread well worn from modern horse traffic.

Photo 6. The old trail tread covered in brush and downfall. The tread is heavily eroded here.

Photo 7. A view from the trail of the Bitterroot Mountains to the east.

Maps

Map Legend

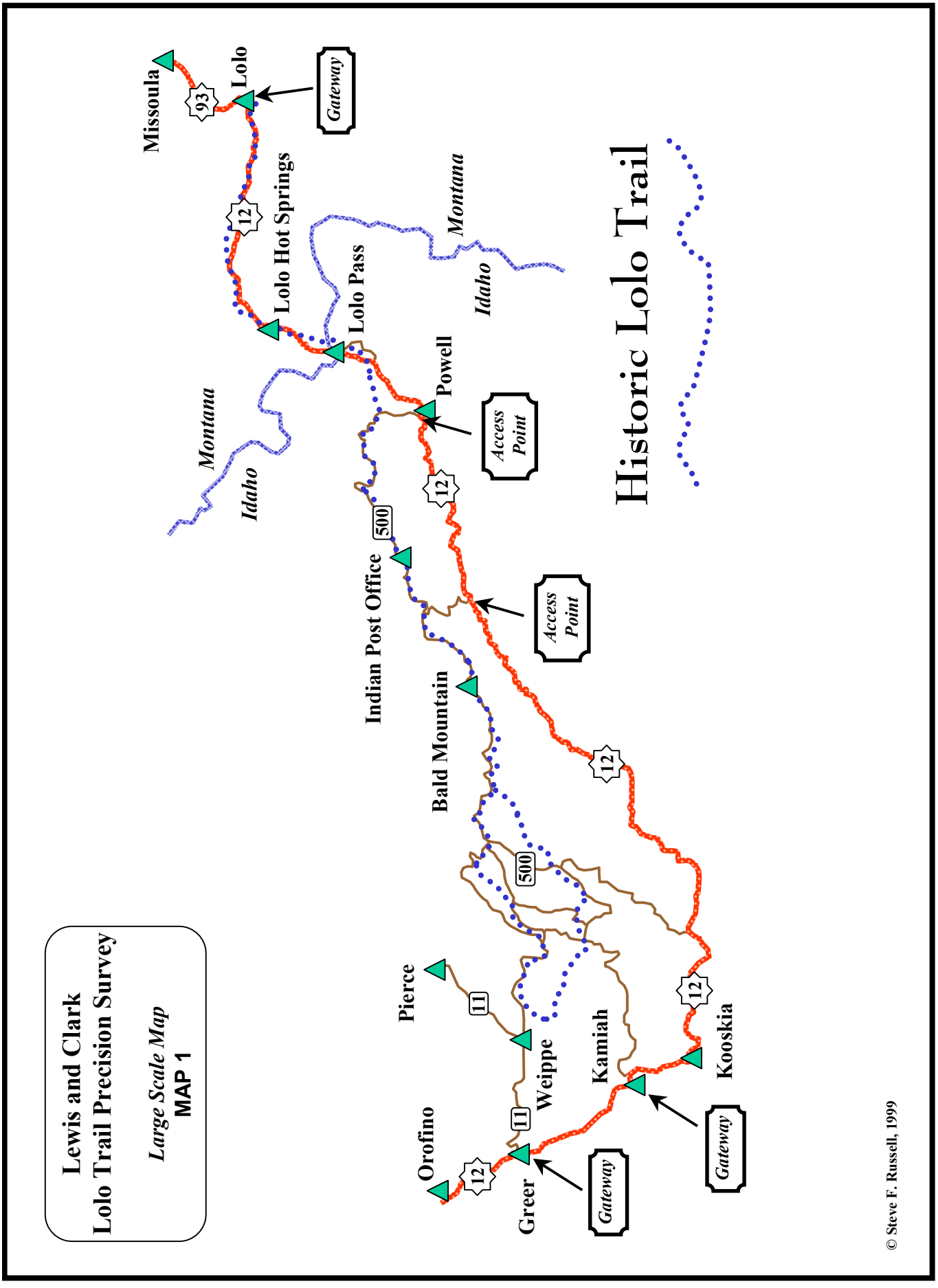


BTT	Bird-Truax Trail, 1866
LCT	Lewis and Clark Trail, 1805-1806
East, West	Direction of travel
Sep 17, 1806 Sinque Hole Camp	Evening date of campsite and camp name
Smoking Place, Jun 27, 1806	Special landmarks
Road 500	Roads designations

Lewis and Clark
Lolo Trail Precision Survey

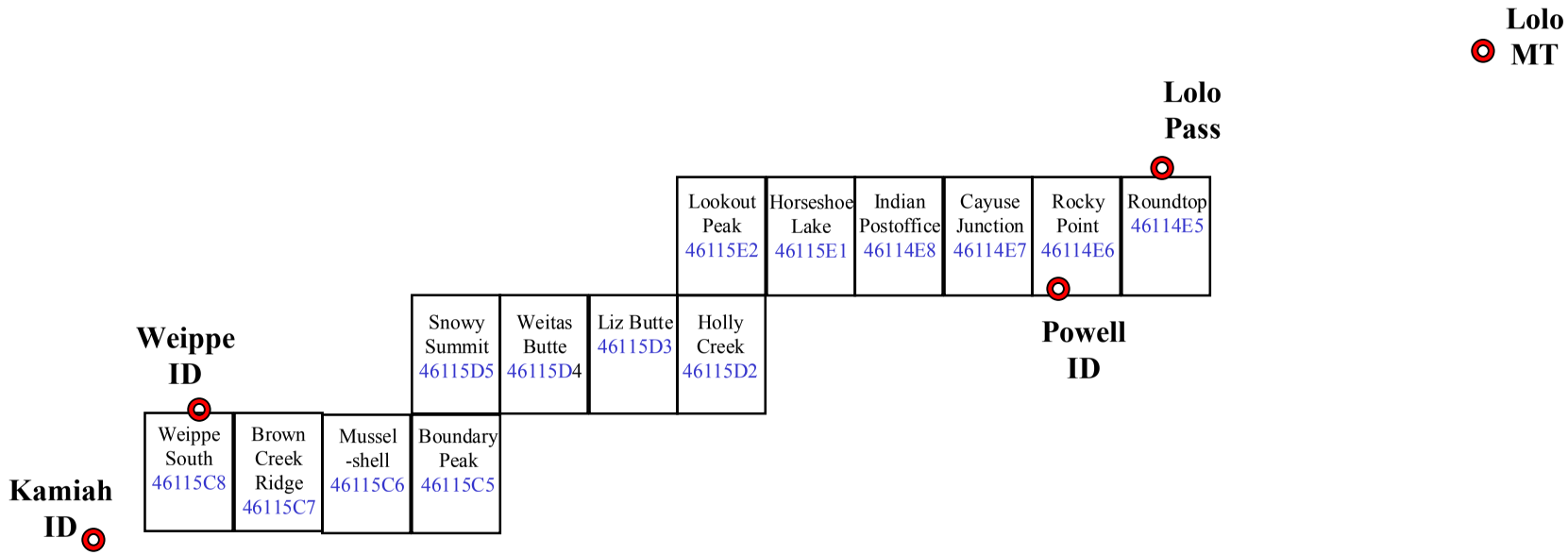
Sep 17-18, 1805 and June 27, 1806
Sinque Hole Camp
MAP LCT-Survey-14

Title block for each map showing the dates of travel, map name, and map designation


Lewis and Clark
Lolo Trail Precision Survey
Large Scale Map
MAP 1
Historic Lolo Trail
Missoula
93
Lolo
12
Lolo Hot Springs
Gateway
Montana
Idaho
Lolo Pass
Montana
Idaho
Powell
Access Point
12
500
Indian Post Office
Bald Mountain
Access Point
12
Pierce
11
500
Orofino
12
11
Weippe
Kamiah
12
Kooskia
Greer
Gateway
Gateway
© Steve F. Russell, 1999

Lewis and Clark
Lolo Trail Precision Survey

Topo Quad Index
MAP 2



7.5 Minute Topographic Quads For the Lolo Trail

DRG prefix letter is "o"

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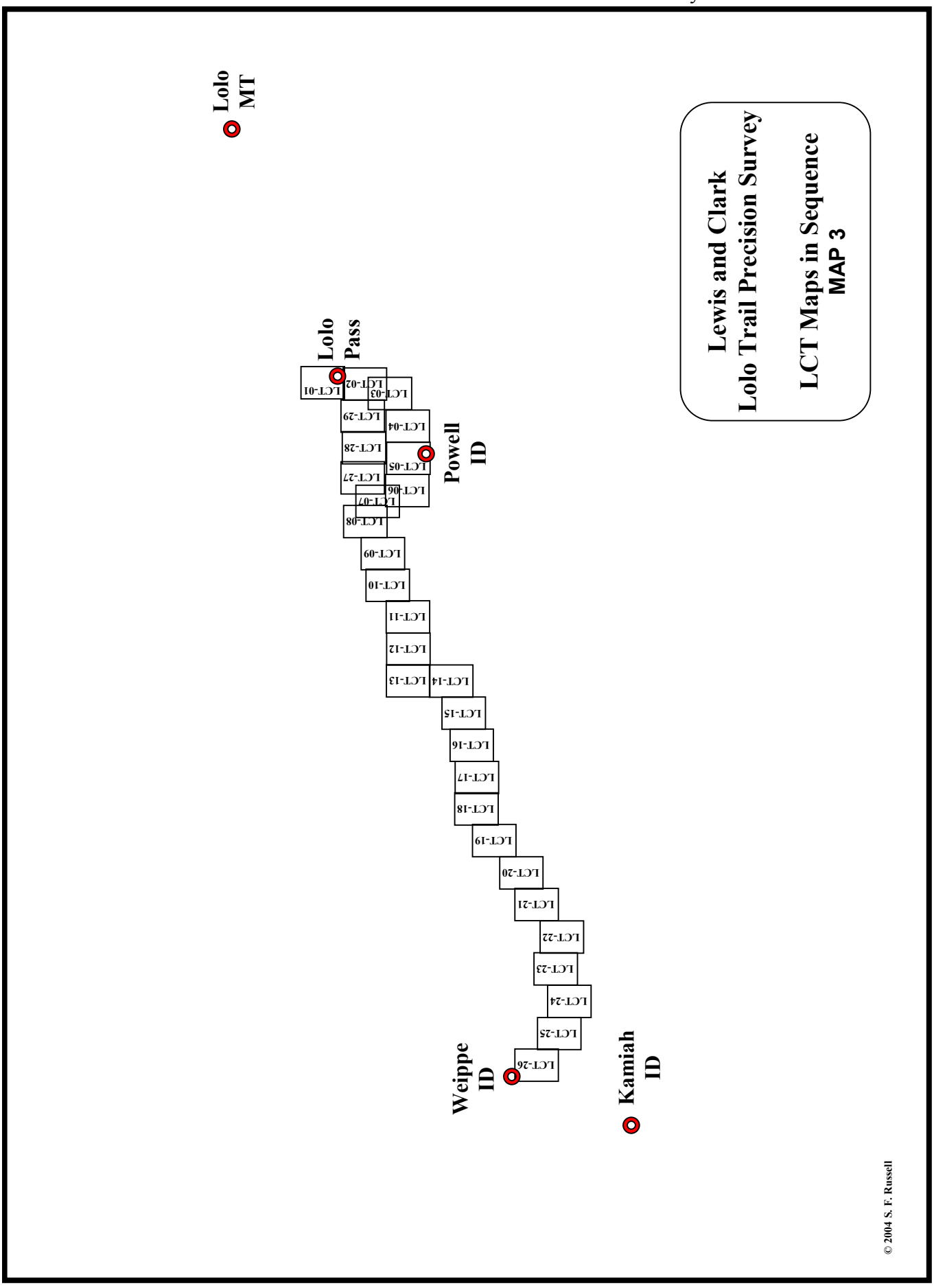
Lewis and Clark
Lolo Trail Precision Survey
LCT Maps in Sequence
MAP 3
Lolo
MT
Lolo
Pass
Powell
ID
Weippe
ID
Kamiah
ID
LCT-01
LCT-02
LCT-03
LCT-04
LCT-05
LCT-06
LCT-07
LCT-08
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LCT-27
LCT-28
LCT-29
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Table of LCT Maps in Sequence

The following table contains map names and geographic and place name references along the trail. This is provided to make trail locations easier to coordinate with modern maps.

Table of Map Names and Geographic References	
Map Name	Geographic References
MAP-1	Large-Scale Map: Orofino ID, Greer, Weippe, Pierce, Kamiah, Kooskia, Bald Mountain, Indian Postoffice, Powell, Lolo Pass, Lolo Hot Springs, Lolo MT, Missoula
MAP-2	Topo Quad Index: Weippe ID, Kamiah ID, Powell, Lolo Pass, Lolo MT
MAP-3	LCT Maps in Sequence: Weippe ID, Kamiah ID, Powell, Lolo Pass, Lolo MT
LCT-Survey-01	Lolo Pass, Lolo Pass Visitor Center, Packer Meadows, Pack Creek, Hwy. 12, Elk Meadows Road
LCT-Survey-02	Glade Creek Camp, Packer Meadows, Pack Creek, Hwy. 12, Crooked Fork Crossing, Brushy Fork Crossing
LCT-Survey-03	Crooked Fork, Brushy Fork Crossing, Hwy. 12, Roundtop
LCT-Survey-04	Crooked Fork, Colt-Killed Creek (White Sands Creek), Lochsa River, White Sands Campground, Star Meadows, Walton Creek, Devoto Memorial Cedar Grove
LCT-Survey-05	Lochsa River, White Sands Campground, Powell Ranger Station, Colt-Killed Camp, Lochsa Lodge, Powell Campground, Powell Pasture, Parachute Hill
LCT-Survey-06	Lochsa River, Whitehouse Pond, Whitehouse Campground, Wendover Campground, Papoose Creek, Wendover Ridge, Wendover Creek, Wendover Trail
LCT-Survey-07	Wendover Ridge, Lolo Motorway, Wendover Trail
LCT-Survey-08	Wendover Ridge, Lolo Motorway, Snowbank Camp, Cayuse Junction, Cayuse Lake, Squaw Creek
LCT-Survey-09	Lolo Motorway, Spring Mountain, Bears Oil and Roots Camp, Spring Creek, Cayuse Creek
LCT-Survey-10	Lolo Motorway, Doe Creek Road, Jerry Johnson Ridge, Indian Postoffice Cairns, Indian Postoffice Lakes, Postoffice Creek, Moon Creek
LCT-Survey-11	Lolo Motorway, Moon Saddle, Lonesome Cove Camp, Moon Creek, Howard Creek, Howard Camp, Weir Creek

Table of Map Names and Geographic References	
LCT-Survey-12	Lolo Motorway, Howard Camp, Howard Creek, Moccasin Peak, Horshoe Lake, Serpent Creek, Gravey Creek, Devils Chair, Saddle Camp
LCT-Survey-13	Lolo Motorway, 12-Mile Saddle, Sinque Hole, Indian Grave Peak
LCT-Survey-14	Lolo Motorway, Sinque Hole Camp, Indian Grave Camp, Indian Grave Peak, Smoking Place
LCT-Survey-15	Lolo Motorway, Bald Mountain, Bald Mountain Lake, Greensward Camp
LCT-Survey-16	Lolo Motorway, Dry Ridge, No-see-um Meadows
LCT-Survey-17	Lolo Motorway, Liz Butte Road, Sherman Peak, Chimney Butte, Sherman Saddle
LCT-Survey-18	Lolo Motorway, Willow Ridge, Dry Camp, Deep Saddle, Bowl Butte
LCT-Survey-19	Lolo Motorway, Bowl Butte, Green Saddle, Snowbank Cache, Bowl Creek, Hungery Creek, Hungery Creek Camp, Retrograde March Camp
LCT-Survey-20	Hungery Creek, Obia Creek, Yew Creek, Buffalo Robe Camp, Starboard Ravine Camp, Horsesteak Meadow Camp, Windy Saddle, Boundary Peak, Boundary Peak Road, Camel Hill, Jacksons Cow Camp
LCT-Survey-21	Hungery Creek, Boundary Peak Road, Pete Forks Trail, Myrtle Creek, Fish Creek, Jerusalem Artichoke Meadow, Mex Mountain, 500 Road, Dollar Creek
LCT-Survey-22	500 Road, Ridge Camp, Dollar Creek, Eldorado Creek, Two-Bit Creek, Four-Bit Creek, May Creek, Salmon Trout Camp, Small Prairie Camp, Eldorado Ridge
LCT-Survey-23	Eldorado Creek, Lolo Creek, 500 Road, Cedar Creek, April Creek, May Creek, Small Creek Camp, Lewis and Clark Grove, Clark Tree
LCT-Survey-24	Lolo Creek, 100 Road, Lolo Creek Campground, Collins Creek Camp, Crane Creek, Crane Meadows, Brown Creek Ridge
LCT-Survey-25	Brown Creek Ridge, Wilson Creek, Miles Creek, Lacey Meadows
LCT-Survey-26	Wilson Creek, Weippe Prairie, Jim Ford Creek, Heywood Creek, Kamiah Gulch, Weippe ID, 1st Indian Village, 2nd Indian Village
LCT-Survey-27	Lolo Motorway, Cayuse Creek, Lost Lakes Trail
LCT-Survey-28	Cayuse Junction, 13-Mile Camp, Powell Junction, Shotgun Creek, Papoose Creek, 500 Road
LCT-Survey-29	500 Road, Crooked Fork, Crooked Fork, Rocky Point

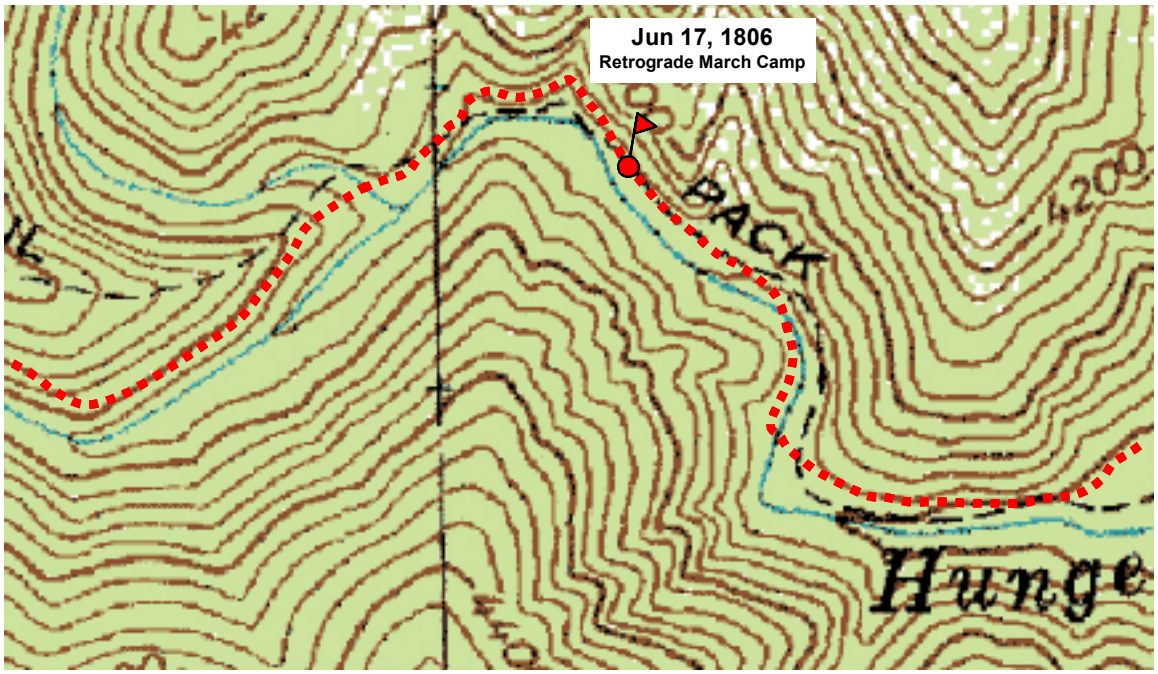


Figure 3. Hungery Creek at the mouth of Obia Creek. This map and the aerial photo below are exactly aligned to show the trail and campsite relative to a topo map and an aerial photo. Refer to maps LCT-Survey-19 and LCT-Survey-20 for a larger area of coverage.

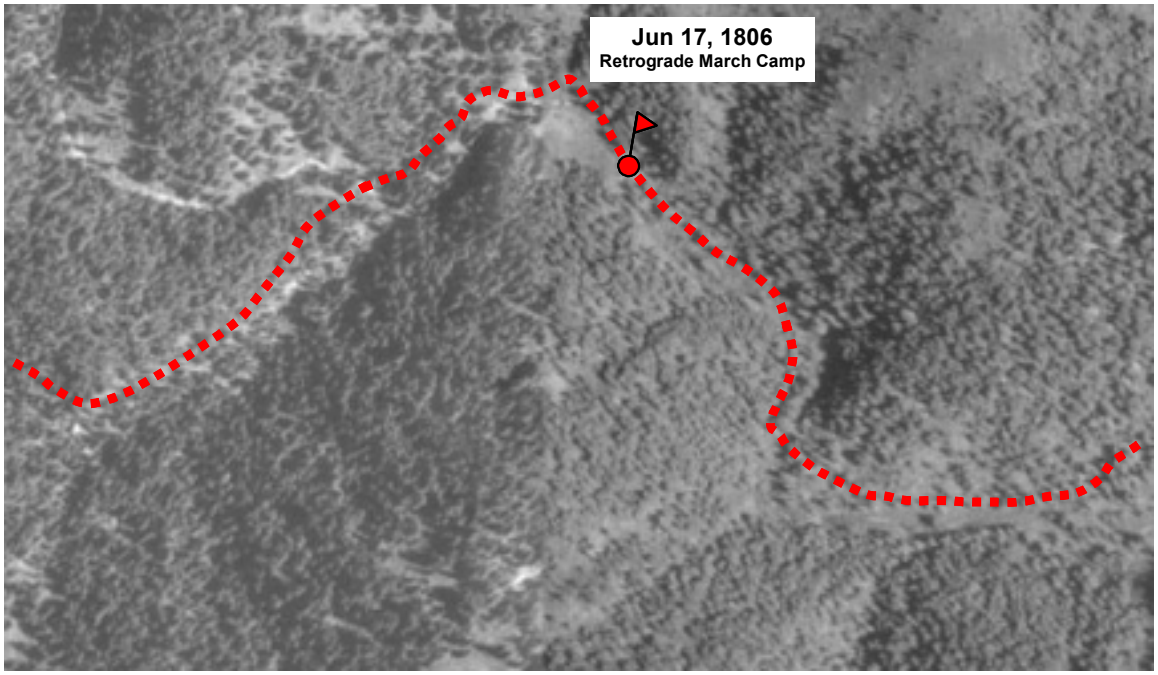


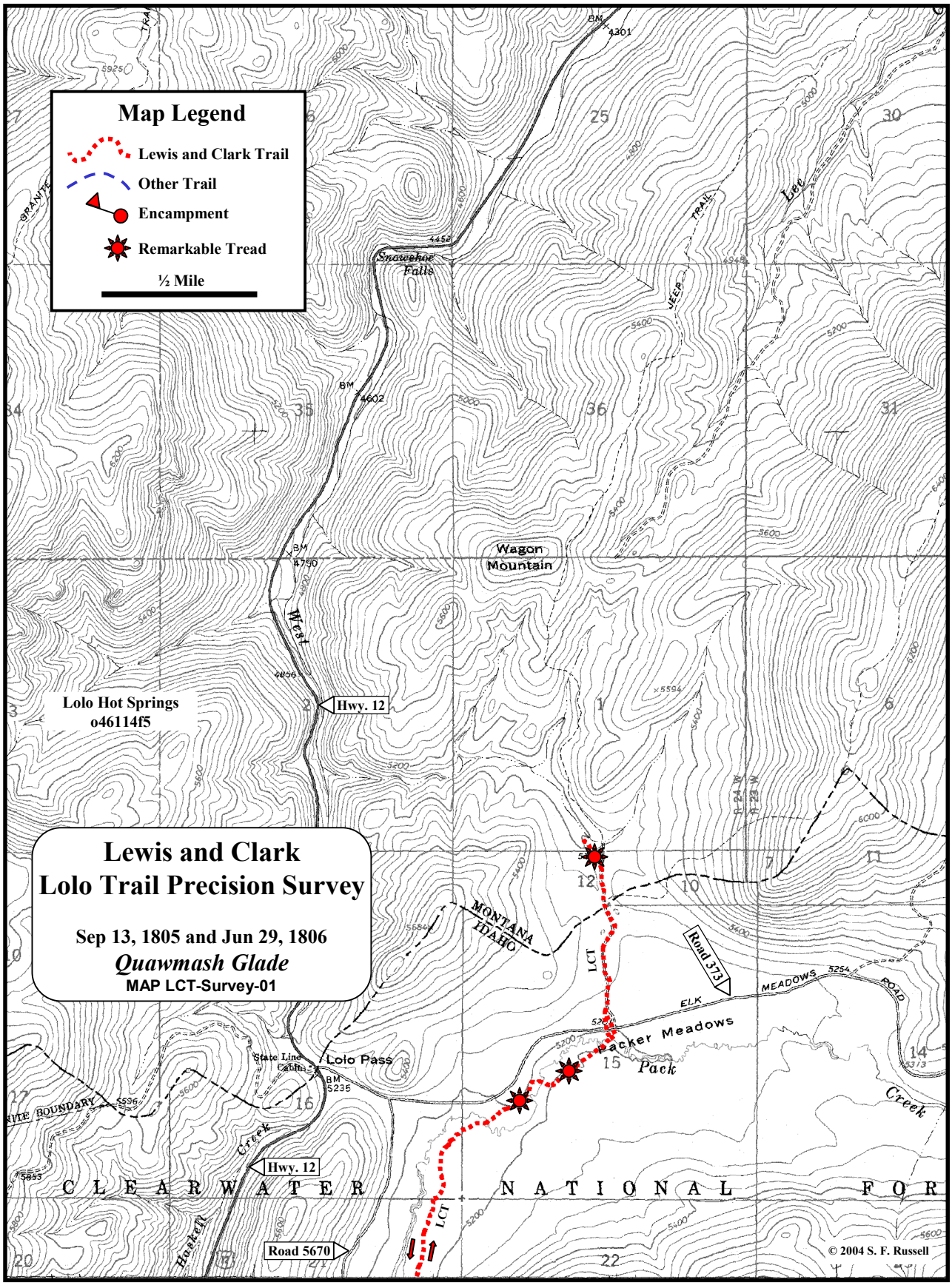
Figure 4. Aerial photo of exact area covered by the topo map above.

LCT-Survey-01
Quawmash Glade

Comments

Packer Meadows, on the divide between Lolo Creek and Pack Creek, was a popular camping spot for all travelers of the old Lolo Trail. Lolo Pass Visitor Center has literature and displays about the trail. There are a few swampy places on the old trail. The north end of the meadows was the main camping area. In 1805, Lewis and Clark camped on the south end of the meadows on the east side of the creek in a flat, dry area now covered in brush and obscured by logging activity. The old Lolo Trail in this area is well worn and easy to follow except for the sections that have been logged over. Even in the logged areas, the trail can be found by careful inspection. The area has many cambium-peeled trees which were used as early spring feed for both horses and people. The trail crosses the creek four times between the pass and the big ridge south of the meadows. The meadows were used for stock grazing in the late 1800s and early 1900s. Some of the trail is well worn from stock traffic and some of the old sheep camps are faintly evident. Packer Meadows is covered in brilliant blue Camas blooms in early spring - an excellent photo opportunity.

Self-Discovery Notes Date: People:

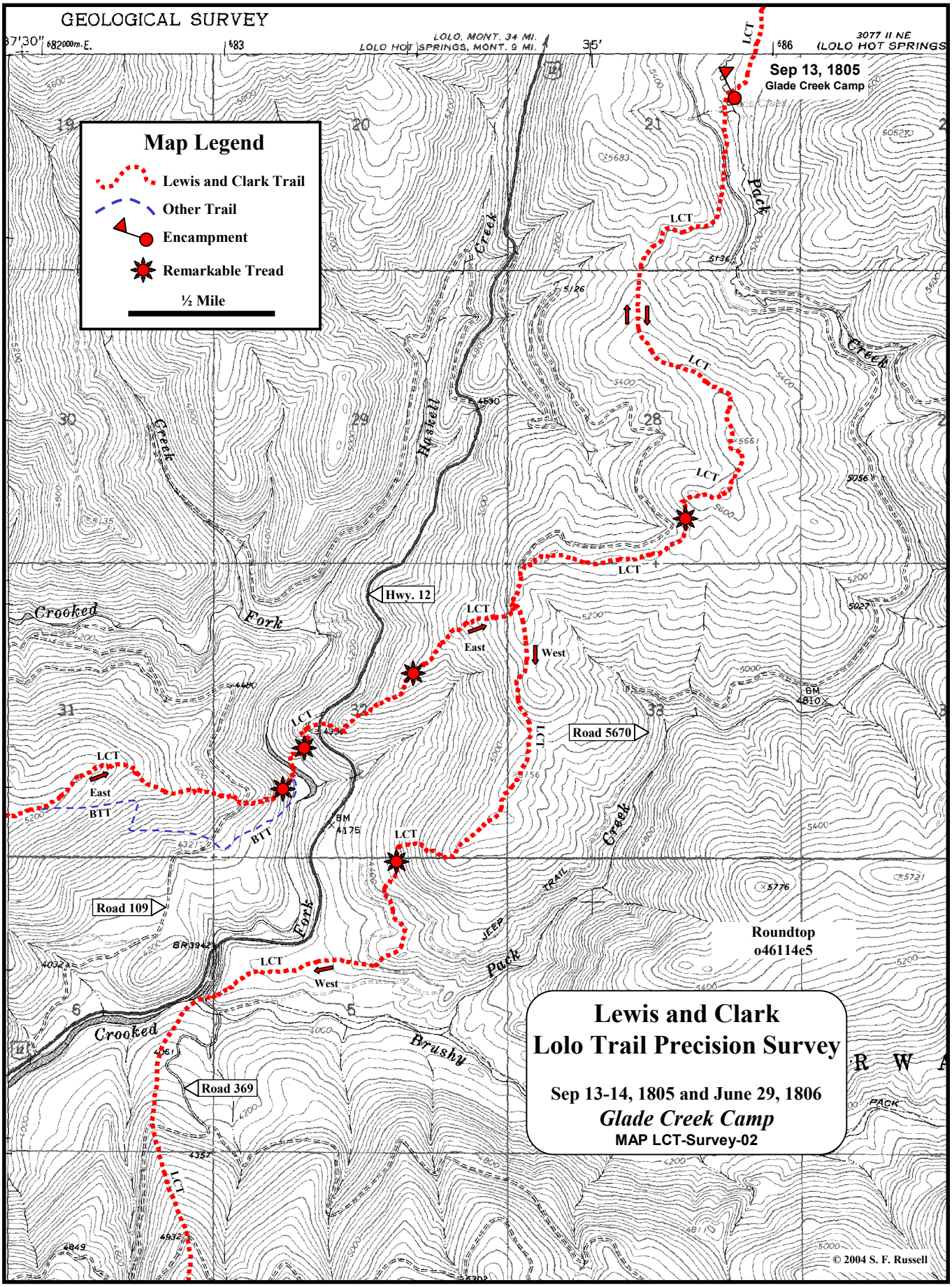

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lolo Hot Springs
o46114f5
Hwy. 12
Lewis and Clark
Lolo Trail Precision Survey
Sep 13, 1805 and Jun 29, 1806
Quawmash Glade
MAP LCT-Survey-01
Wagon Mountain
Snowshoe Falls
MONTANA
IDAHO
LCT
Road 373
ELK MEADOWS ROAD
Packer Meadows
Pack
Lolo Pass
State Line Cabin
BM 5235
Hwy. 12
Road 5670
CLEARWATER NATIONAL FOR
© 2004 S. F. Russell

LCT-Survey-02
Glade Creek Camp

Comments

Glade Creek Camp was on a dry flat on the east side of the creek where the trail crosses to the west side. On the top of the ridge between Pack Creek and Crooked Fork the trail forked into two branches. The southern branch was the Salish Salmon fishing trail to the Lochsa River and was the branch followed by the Corps in 1805 as they headed westward. The western branch crossed Crooked Fork and climbed steeply up to the main ridge system that, for centuries, has carried Lolo Trail travelers all the way to Green Saddle and the descent to Hungery Creek. There are several sections of easy-to-find trails in this area. The best trail tread is the section that goes northeast up the ridge from Highway 12 to the trail junction. Some logging has occurred that obscures the trail tread in a few locations.

Self-Discovery Notes Date: People:

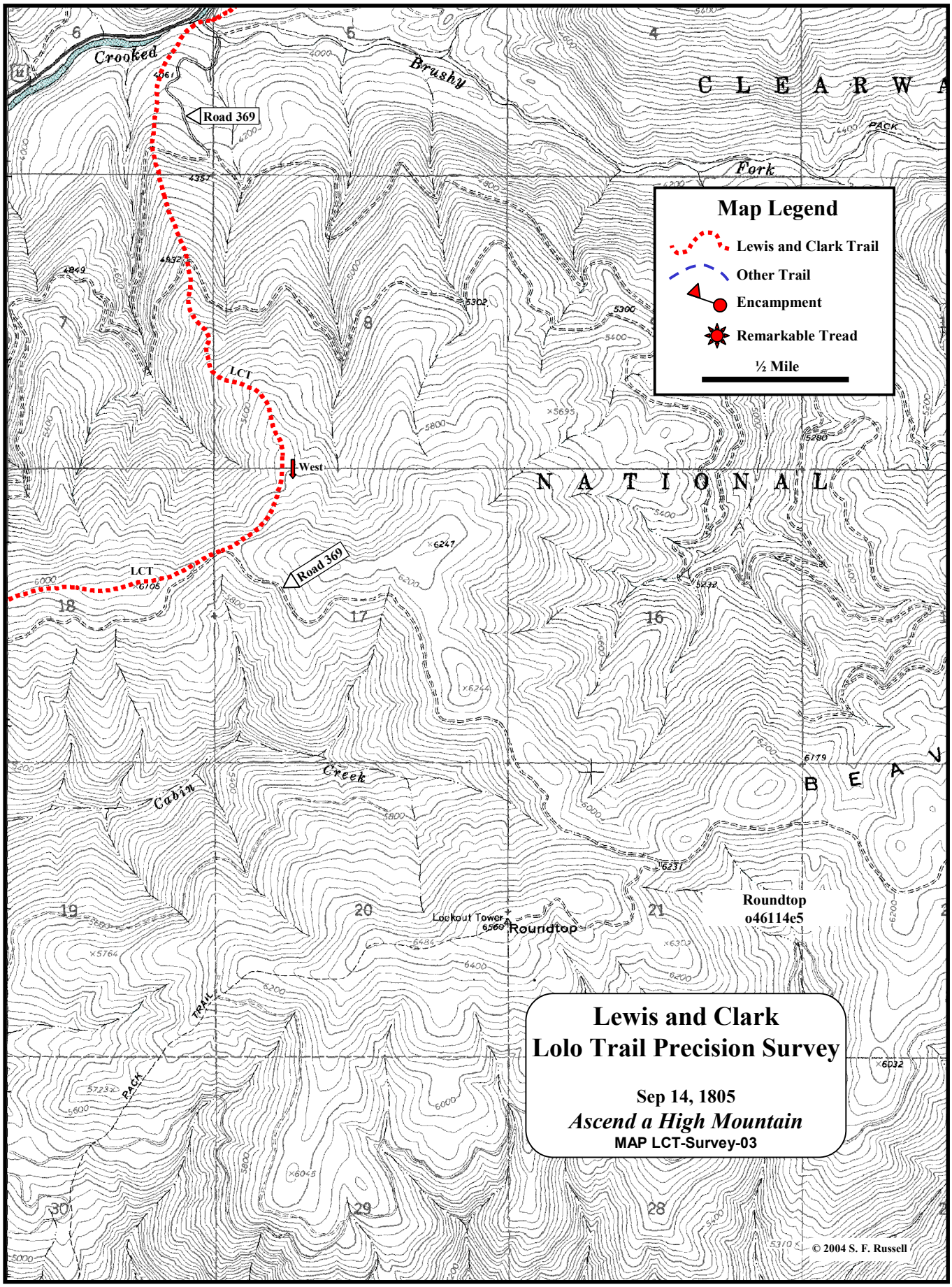

GEOLOGICAL SURVEY
LOLO, MONT. 34 MI.
LOLO HOT SPRINGS, MONT. 9 MI.
3077 II NE
(LOLO HOT SPRINGS
Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Sep 13, 1805
Glade Creek Camp
LCT
Hwy. 12
Road 5670
Road 109
Road 369
East
West
BTT
Roundtop
o46114e5
Lewis and Clark
Lolo Trail Precision Survey
Sep 13-14, 1805 and June 29, 1806
Glade Creek Camp
MAP LCT-Survey-02
© 2004 S. F. Russell

LCT-Survey-03
Ascend a High Mountain

Comments

The old Salish fishing trail climbed from the crossing of Brushy Fork to the top of the ridge between Cabin Creek and Crooked Fork. Today, this route has been extensively logged so the trail route is hard to find. The journals contain several complaints about how steep and rugged the trail is over this ridge.

Self-Discovery Notes Date: People:

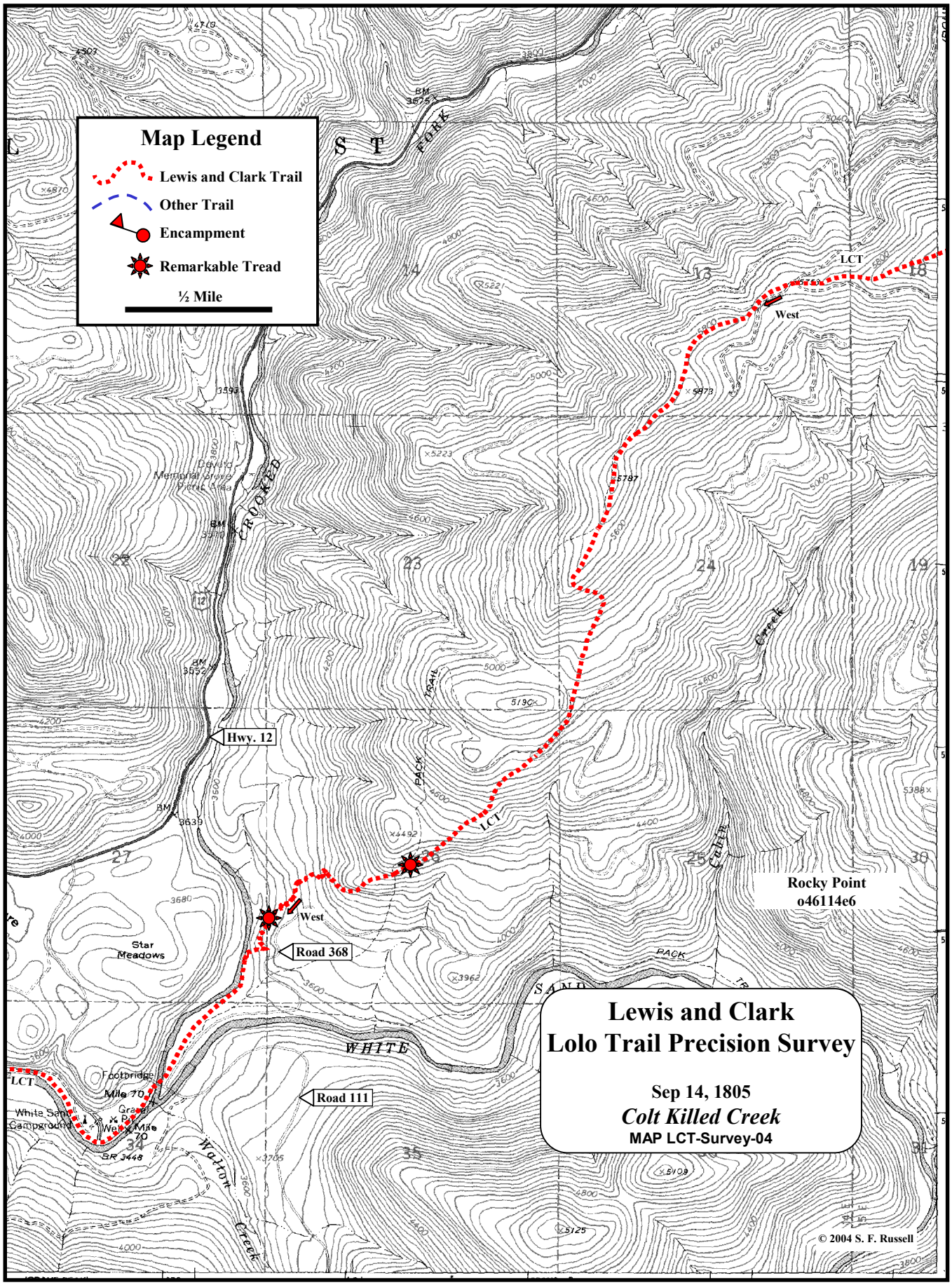

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Road 369
LCT
West
Crooked
Brushy
Fork
Cabin
Creek
Lookout Tower
Roundtop
Roundtop
o46114e5
Lewis and Clark
Lolo Trail Precision Survey
Sep 14, 1805
Ascend a High Mountain
MAP LCT-Survey-03
© 2004 S. F. Russell

LCT-Survey-04
Colt Killed Creek

Comments

The trail descended off the ridge and down to fishing weirs along Crooked Fork above the mouth of Colt Killed Creek. The name for this creek has been changed from White Sand Creek to honor the original naming of the creek by the Corps. The trail along the river no longer exists as an erosion trace but up the steep nose of the ridge, there are several places where the trail can be found. The route along the northern half of the map has been extensively logged. White Sand Campground and the gravel pit are located on top of an ancient camping site. Other camping sites were located along Crooked Fork above the mouth of Colt Killed (White Sand) Creek.

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
LCT
West
Hwy. 12
Road 368
Road 111
Rocky Point
o46114e6
Lewis and Clark
Lolo Trail Precision Survey
Sep 14, 1805
Colt Killed Creek
MAP LCT-Survey-04
© 2004 S. F. Russell

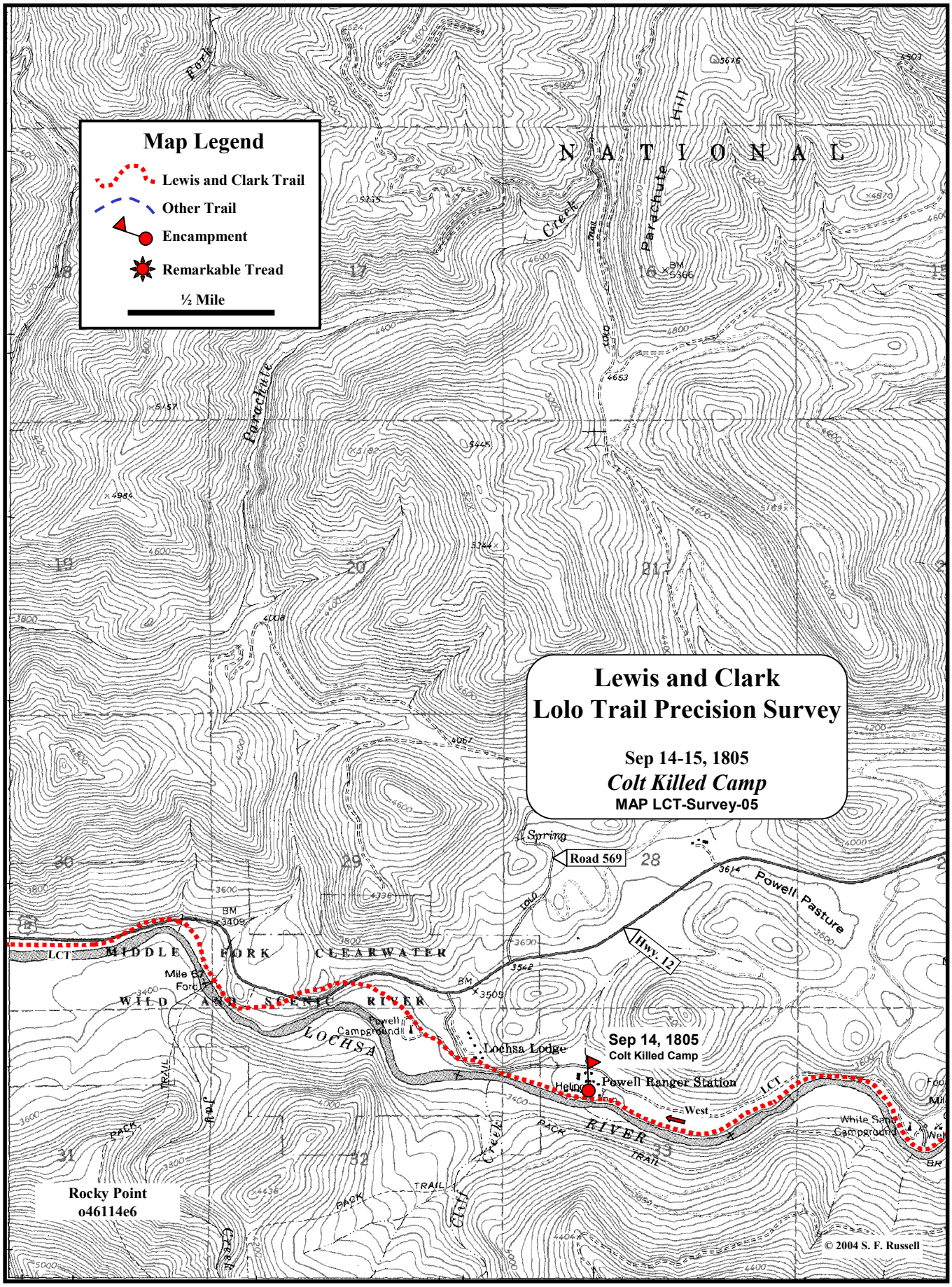
LCT-Survey-05
Colt Killed Camp

Comments

The campsite of September 14, 1805 is at Powell Ranger Station in the area of the Heliport. This location is next to the river and adjacent to the lower end of the river island reported in the journals. Hungry, cold, and wet, the Corps killed a colt to eat for the evening meal. This must have affected the sensibilities of the men because they named the creek for the colt. The Forest Service constructed a down-river trail along the northern side of the Lochsa River that is mingled with the original Salish fishing trail. Only small segments of the original trail still exist today. The old trail went through the front yard of Lochsa Lodge and through the middle of Powell Campground.

This excellent flat at Colt Killed Camp was one of the few good places along the upper Lochsa River for the construction of a ranger station. Powell is named for Charley Powell who originally lived at this ancient campsite. When the Forest Service decided to build a ranger station at the same location, Powell was forced to abandon his claim to the site. Years later, land surveys would show that the Forest Service claimed land that actually belonged to the Northern Pacific Railroad as part of their land grant. A deal was worked out to transfer the quarter section of land at Powell to federal ownership.

Self-Discovery Notes Date: People:

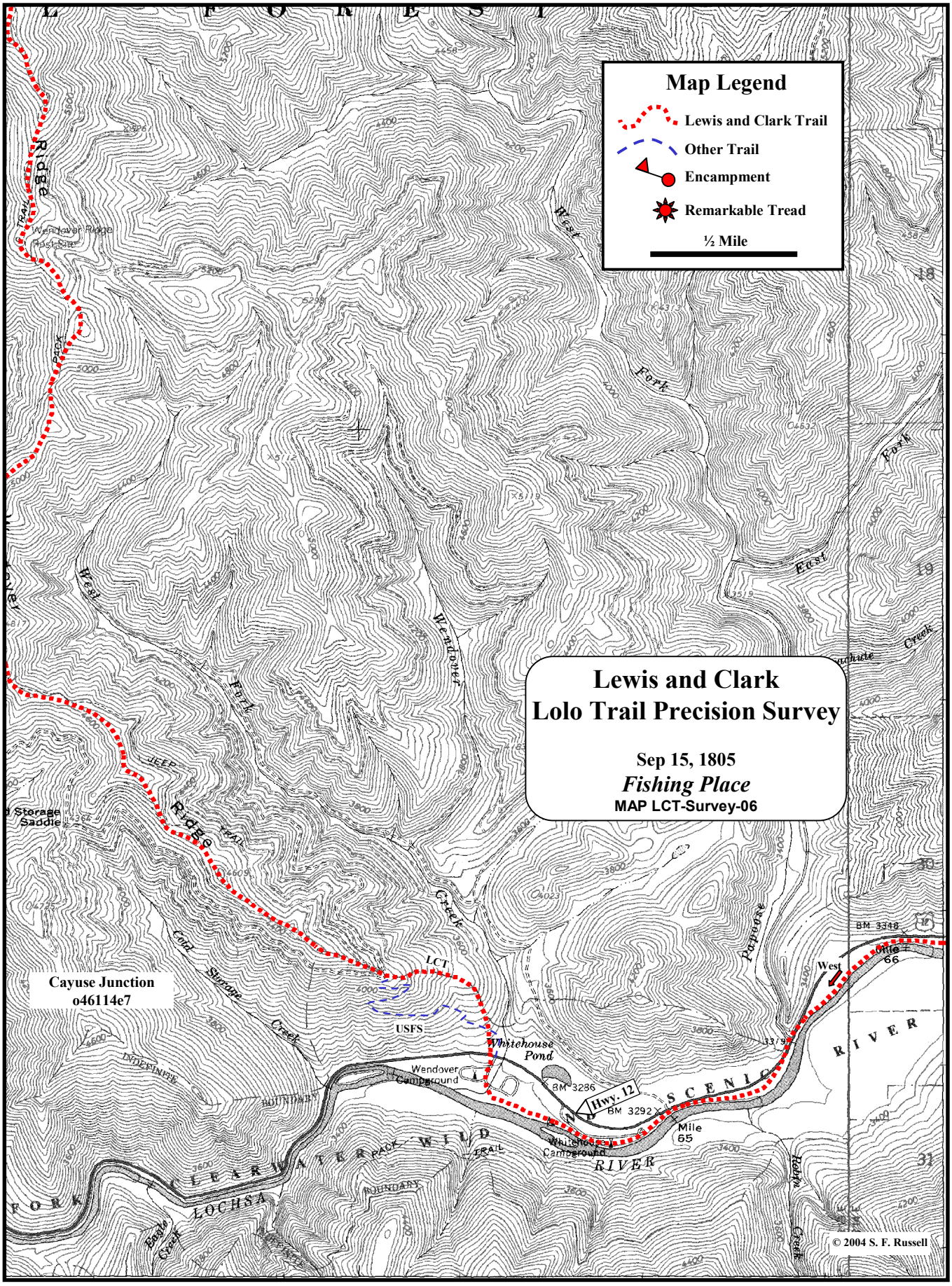

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 14-15, 1805
Colt Killed Camp
MAP LCT-Survey-05
Sep 14, 1805
Colt Killed Camp
Rocky Point
o46114e6
Road 569
Hwy. 12
Powell Ranger Station
Lochsa Lodge
Powell Campground
Spring
Parachute Creek
Powell Pasture
MIDDLE FORK CLEARWATER
WILD AND SCENIC RIVER
LOCHSA
RIVER
LCT
BM 3409
BM 3505
BM 5366
Mile 62
Ford
West
White Sands Campground
Cliff Creek
PACK TRAIL
© 2004 S. F. Russell

LCT-Survey-06
Fishing Place

Comments

The trail stayed up on the sidehill in many places along the river until reaching the large flat at Wendover and Whitehouse pond. The flat is named for Bert Wendover, an early fur trapper in the area. The pond is named for Private Joseph Whitehouse who mentioned it in his journal for September 15, 1805. The pond is a popular feeding place for moose so be very careful if you decide to hike around it. The old down-river trail used to go past the pond on its south side where the highway is now located. The old trail in this area was dispersed to various camping sites along the river where salmon weirs were used season after season. To get back to the main branch of the trail high on the ridge to the north, the Corps would have to climb up the steep nose of Wendover Ridge and continue for several miles to the top. This trail was little used by either the Nez Perce or by the Salish. When Olin Wheeler visited Wendover Ridge over one hundred years ago, he reported only a little used trail up the ridge (§13). The Forest Service constructed a trail up the ridge to access a short-lived lookout about half way up. This is the trail you can hike today to follow their route.

Self-Discovery Notes Date: People:

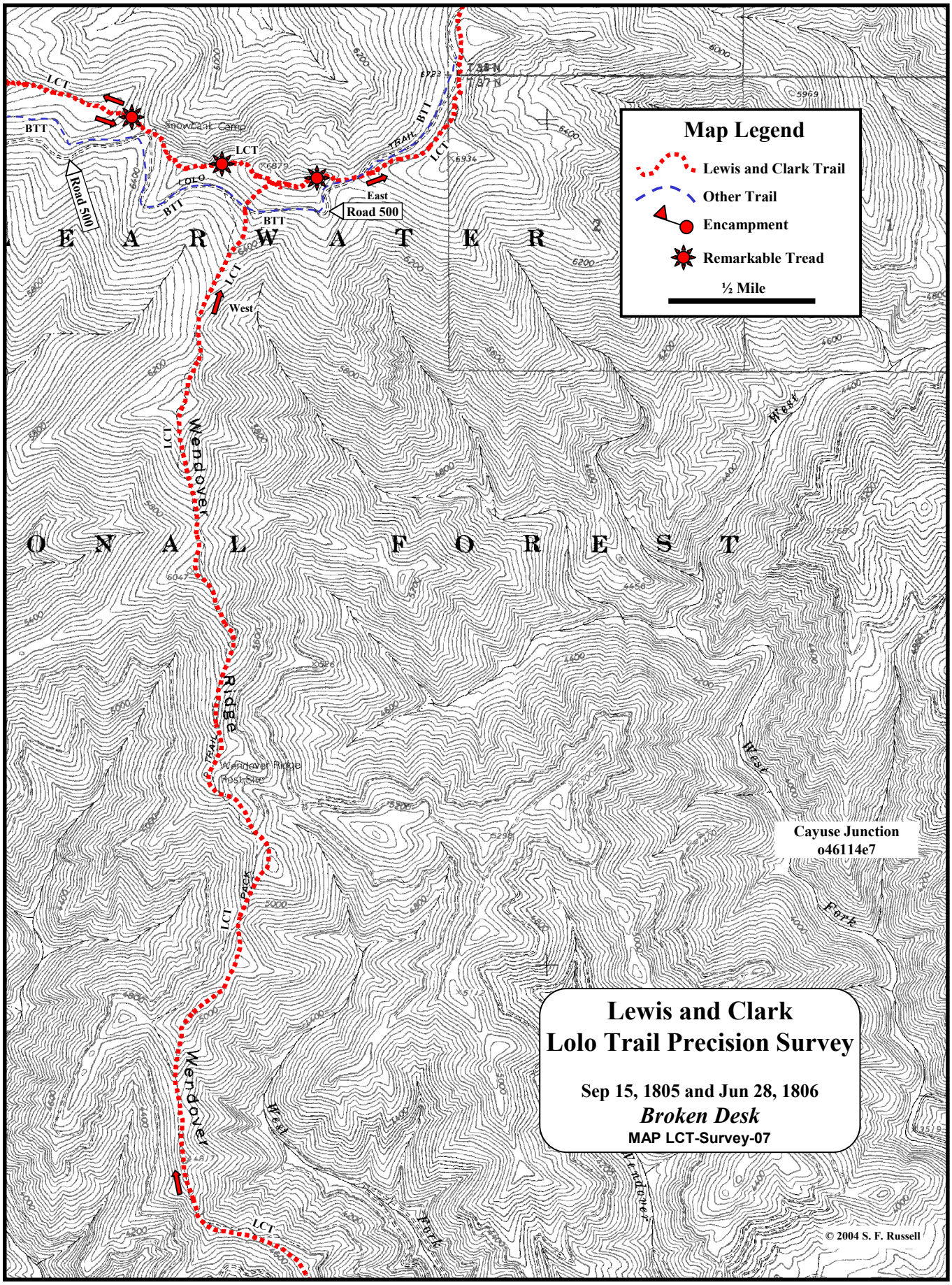

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 15, 1805
Fishing Place
MAP LCT-Survey-06
Cayuse Junction
o46114e7
Ridge
Wendover Ridge
Trail
Pack
West
Fork
East
Wendover
Creek
Jeep
Ridge
Trail
Storage
Saddle
Cold
Storage
Creek
LCT
USFS
Whitehouse
Pond
Wendover
Campground
BM 3286
Hwy. 12
BM 3292
Mile
65
Whitehouse
Campground
SCENIC
RIVER
Papoose
BM 3348
Mile
66
West
RIVER
CLEARWATER
LOCHSA
FORK
BACK
WILD
TRAIL
BOUNDARY
INDEFINITE
Eagle
Creek
Rabbit
Creek
© 2004 S. F. Russell

LCT-Survey-07
Broken Desk

Comments

One of the horses, carrying Clark's desk, fell off the trail and rolled down the steep hillside breaking the desk. The Corps nooned at a spring halfway up. This is a rigorous hike not suitable for everyone. The top of Wendover Ridge terminated on top of the main ridge of the Lolo Trail. They were once again on the "great road." There are several segments of good tread along the top of the main ridge. Snowbank camp is not located where it is shown on the map. In fact, the first snowbank camp sign was about 0.2 miles east of Wendover Ridge. Notice that the square-mile grid lines are missing from the topographic map. The reason is that this area has never had a certified government land survey and, perhaps, never will. Access to the top of the main ridge is via Road 500 (Lolo Motorway or Lolo Divide Road). Road 500 will parallel the old trail for many miles and gives excellent access to this rugged country.

Self-Discovery Notes Date: People:

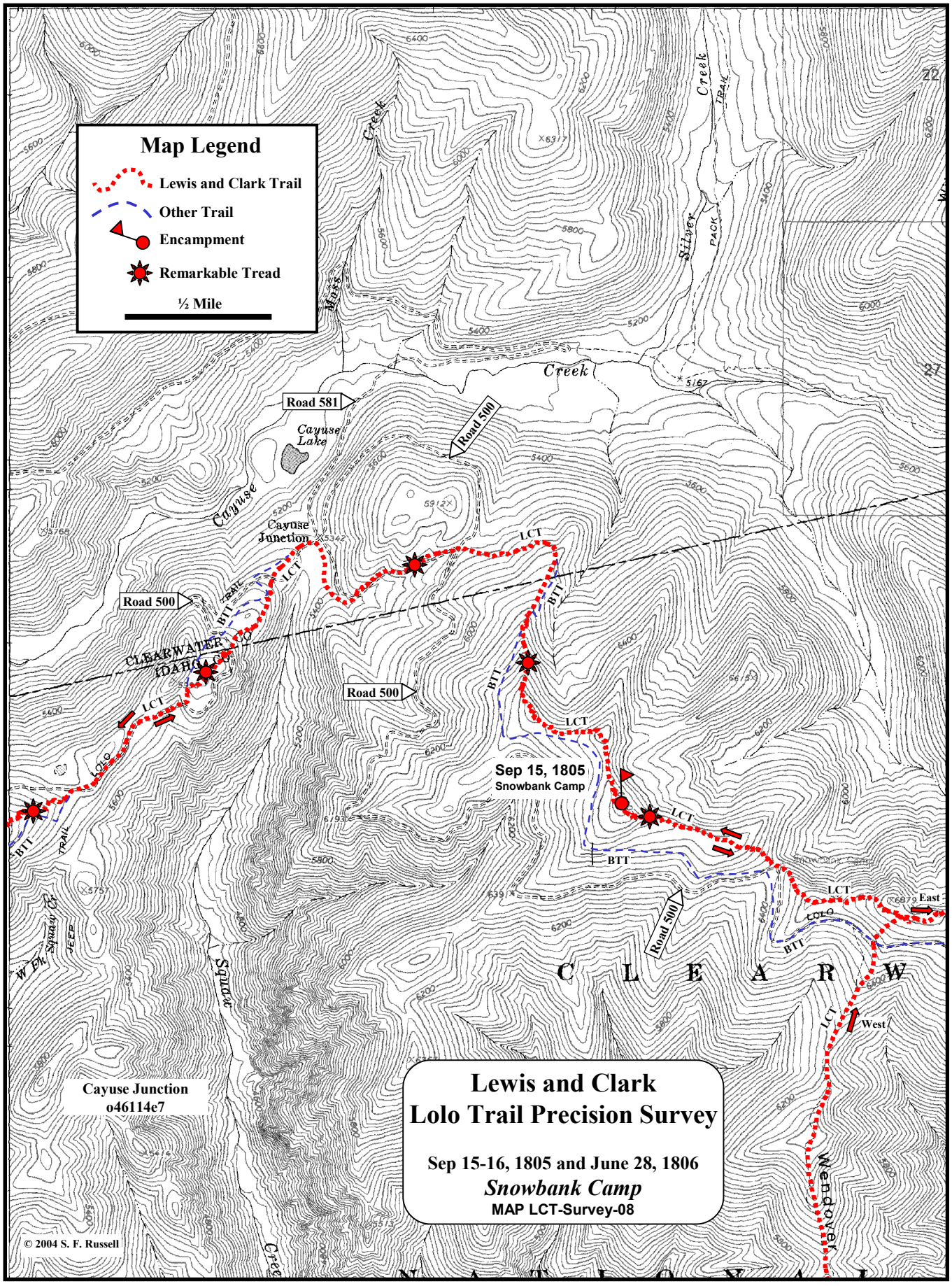

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
LCT
BTT
Snowbank Camp
Road 500
East
West
Wendover Ridge
Wendover Ridge Trail
Cayuse Junction
o46114e7
Lewis and Clark
Lolo Trail Precision Survey
Sep 15, 1805 and Jun 28, 1806
Broken Desk
MAP LCT-Survey-07
© 2004 S. F. Russell

LCT-Survey-08
Snowbank Camp

Comments

The night of September 15, 1805, the Corps reached one of the highest points along the trail - a place we now call Snowbank Camp. They had spent a very long day traveling from Powell to this point. That night, they used snow from the small snow banks to melt for water. During the night, it started snowing and they could see that winter was coming on fast and they had to get over these mountains to lower elevations if they were to survive. The 1806 trail can be hiked westward from the saddle to the east side of the peak. The 1866 trail is on the south and west face of the peak. Both are easy to find and offer an excellent study in the nature and contrast of the two trails. Early on the 16th, they started westward again, going from one of the highest points on the trail to one of the three lowest points - Cayuse Junction. On their return in 1806, Lewis called Cayuse Junction a "Deep Hollow." There are several places along this route you can discover both 1806 and 1866 trails. The one-lane road forks at Cayuse Junction. Road 500 continues southwest and the Kelly Creek Road goes northward down to Cayuse Lake and Cayuse Creek. The deep canyon to the south is Squaw Creek. The steep rocky hillsides you see were once popular habitat for mountain goats. Game was very sparse along the Lolo Trail but game trails did cross over the main ridge that separated the Lochsa River from Cayuse Creek. Clark reports seeing 4 blacktail deer as they were starting out from Snowbank Camp; he tried shooting at them but his gun failed. This failure was caused by the heavy, wet snow and damp weather. The topo map has Snowbank Camp marked too far east of the true location.

Self-Discovery Notes Date: People:

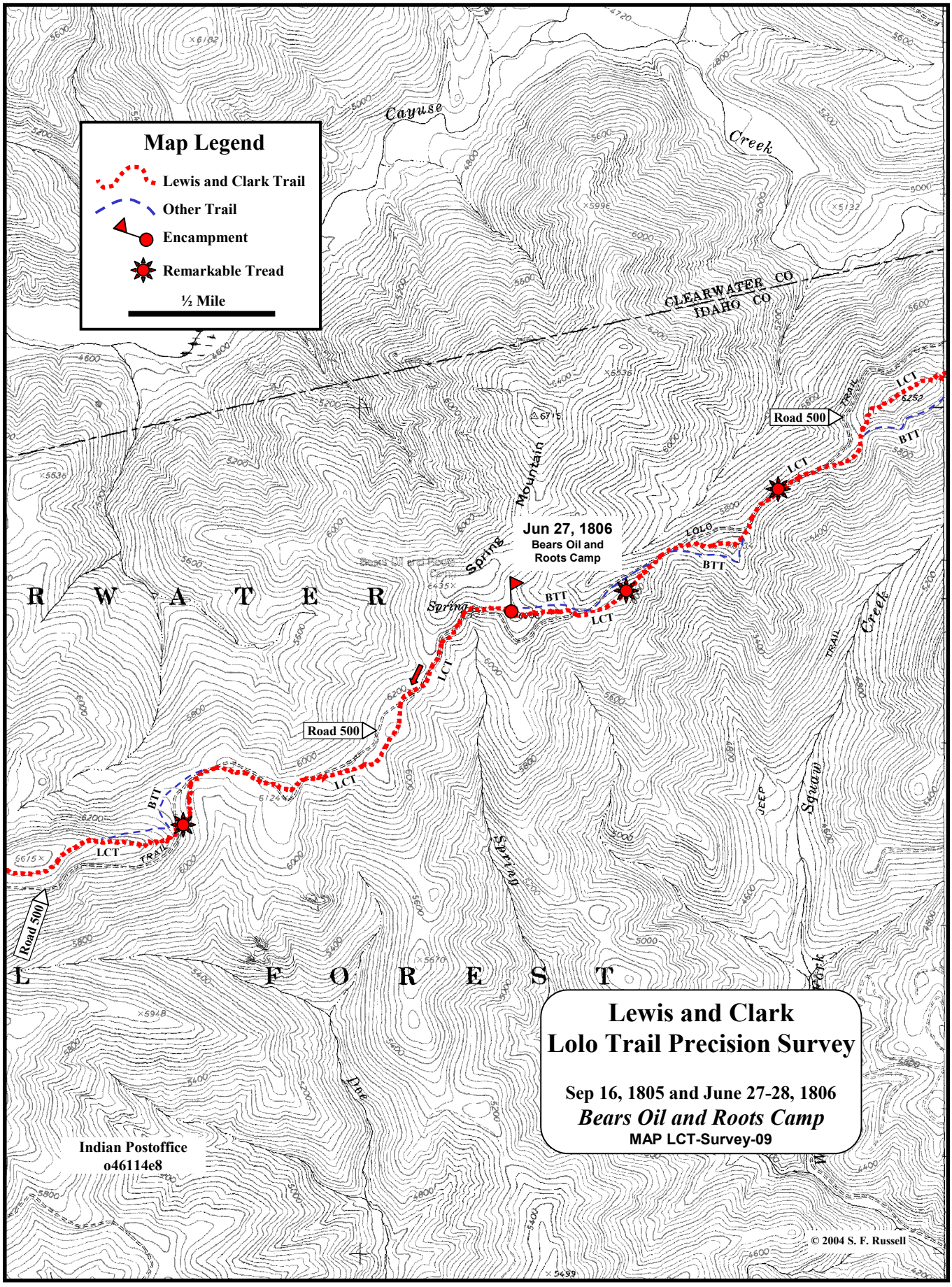

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Road 581
Road 500
Cayuse Lake
Cayuse Junction
LCT
BTT
Sep 15, 1805
Snowbank Camp
CLEARWATER
IDAHO
MONTANA
C L E A R W
Cayuse Junction
o46114e7
Lewis and Clark
Lolo Trail Precision Survey
Sep 15-16, 1805 and June 28, 1806
Snowbank Camp
MAP LCT-Survey-08
© 2004 S. F. Russell
East
West
Wendover

LCT-Survey-09
Bears Oil and Roots Camp

Comments

The trail and road both pass near the June 27, 1806 camp on the side of Spring Mountain. You can hike up to the campsite but it has been used for many years as a hunting camp and its historic nature has been altered. The small spring along the road was once called Swan's Spring but several years of below-average precipitation have all but dried it up. It was the water source for this campsite and the only water from Cayuse Junction to Moon Creek. The 1806 and 1866 trails are mingled together in some places in this area. Hiking to the top of Spring Mountain will reward you with spectacular views of the Bitterroot Mountains and you will be able to see the main ridge followed by the Lolo Trail for several miles in both directions. The wild flowers on the hillsides add great color to photographs. The location of Bears Oil and Roots Camp shown on the topo map is, for some unknown reason, completely on the wrong side of Spring Mountain.

Self-Discovery Notes Date: People:

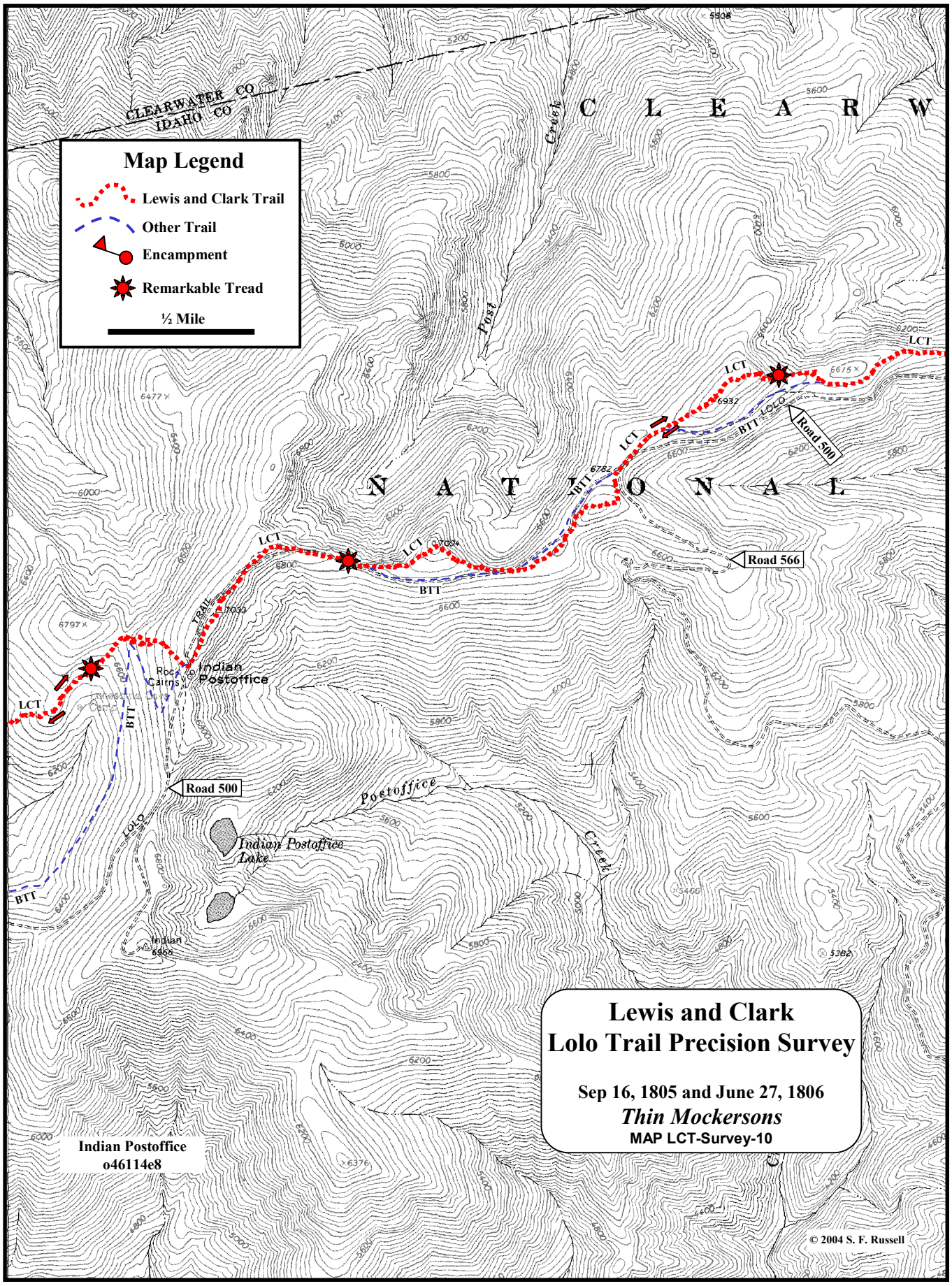

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
CLEARWATER CO
IDAHO CO
Road 500
LCT
BTT
LOLO TRAIL
Jun 27, 1806
Bears Oil and Roots Camp
Mountain
Spring
Creek
Squaw
Fork
Dog
JEEP
R W A T E R
L F O R E S T
Lewis and Clark
Lolo Trail Precision Survey
Sep 16, 1805 and June 27-28, 1806
Bears Oil and Roots Camp
MAP LCT-Survey-09
Indian Postoffice
o46114e8
© 2004 S. F. Russell

LCT-Survey-10
Thin Mockersons

Comments

The trail followed the top of the ridge from Spring Mountain all the way to Indian Postoffice. It is along this route that Clark reports that he thought his feet would freeze in his thin moccasins. The trail went just past the highest elevation of the Lolo Trail before dropping down off the main ridge and into the cove formed by two branches of Moon Creek. The journals do not report either the rock cairns or the two beautiful lakes on the east side of the ridge. It is likely that the snow, the urgency to get shelter, and the trail route all contributed to them not seeing cairns. It is also possible that they were not there (§14), although the journals report a large cairn at Smoking Place. The Lonesome Cove Camp is not at the location shown on the topo map. The 1806 and 1866 trails take dramatically different routes west of Postoffice. Also, the Northern Nez Perce Trail has two routes to Moon Saddle. The one the Corps took in 1805 and an 1866 route that goes past the lakes and stays on the ridge top until going down into Moon Saddle.

Self-Discovery Notes Date: People:

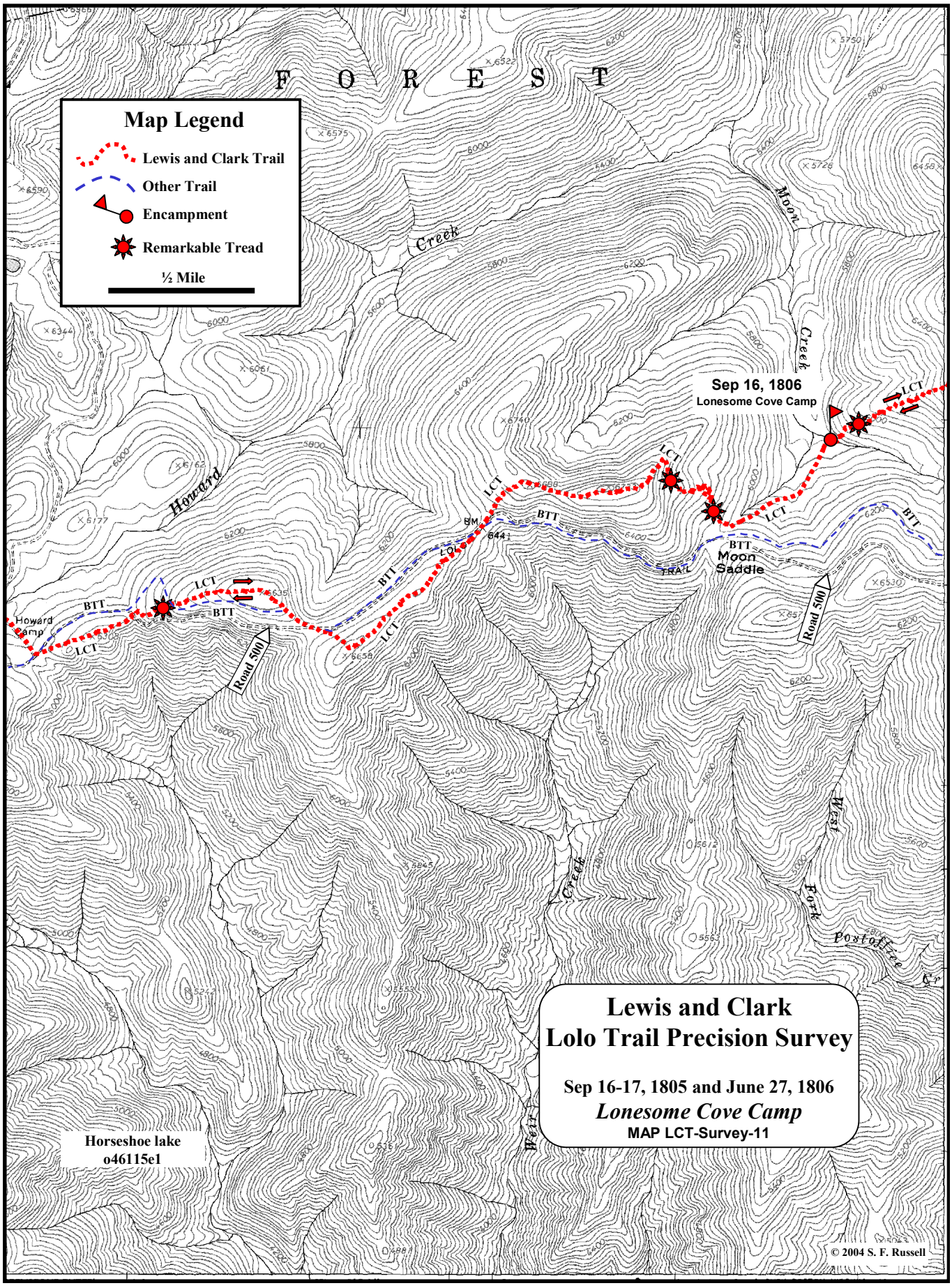

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
CLEARWATER CO
IDAHO CO
Post Creek
C L E A R W
N A T I O N A L
LCT
BTT
LOLO
Road 500
Road 566
TRAIL
Rock Cairns
Indian Postoffice
Postoffice Creek
Indian Postoffice Lake
Lewis and Clark
Lolo Trail Precision Survey
Sep 16, 1805 and June 27, 1806
Thin Mockersons
MAP LCT-Survey-10
Indian Postoffice
o46114e8
© 2004 S. F. Russell

LCT-Survey-11
Lonesome Cove Camp

Comments

Lonesome Cove Camp is in an awkward place along Moon Creek. It is on a narrow, small ridge point with no good places to sleep on the level. If they had not been desperate to strike camp and get shelter, they would have found better camping a short distance down the creek. The separation between the 1806 and 1866 trails is good in this area. There is also good trail tread to explore. The heavy brush-field between Moon Saddle and the campsite makes hiking to it very difficult. Some researchers have placed the trail down Moon Creek and up Howard Creek but my extensive explorations of the area revealed no trail tread to compare with the one shown on the map. The tread westward out of Moon Saddle is extensive, braided, and deep. The topo map incorrectly shows Lonesome Cove Camp almost a mile away, off the trail, and on the steep side of a ridge.

Self-Discovery Notes Date: People:

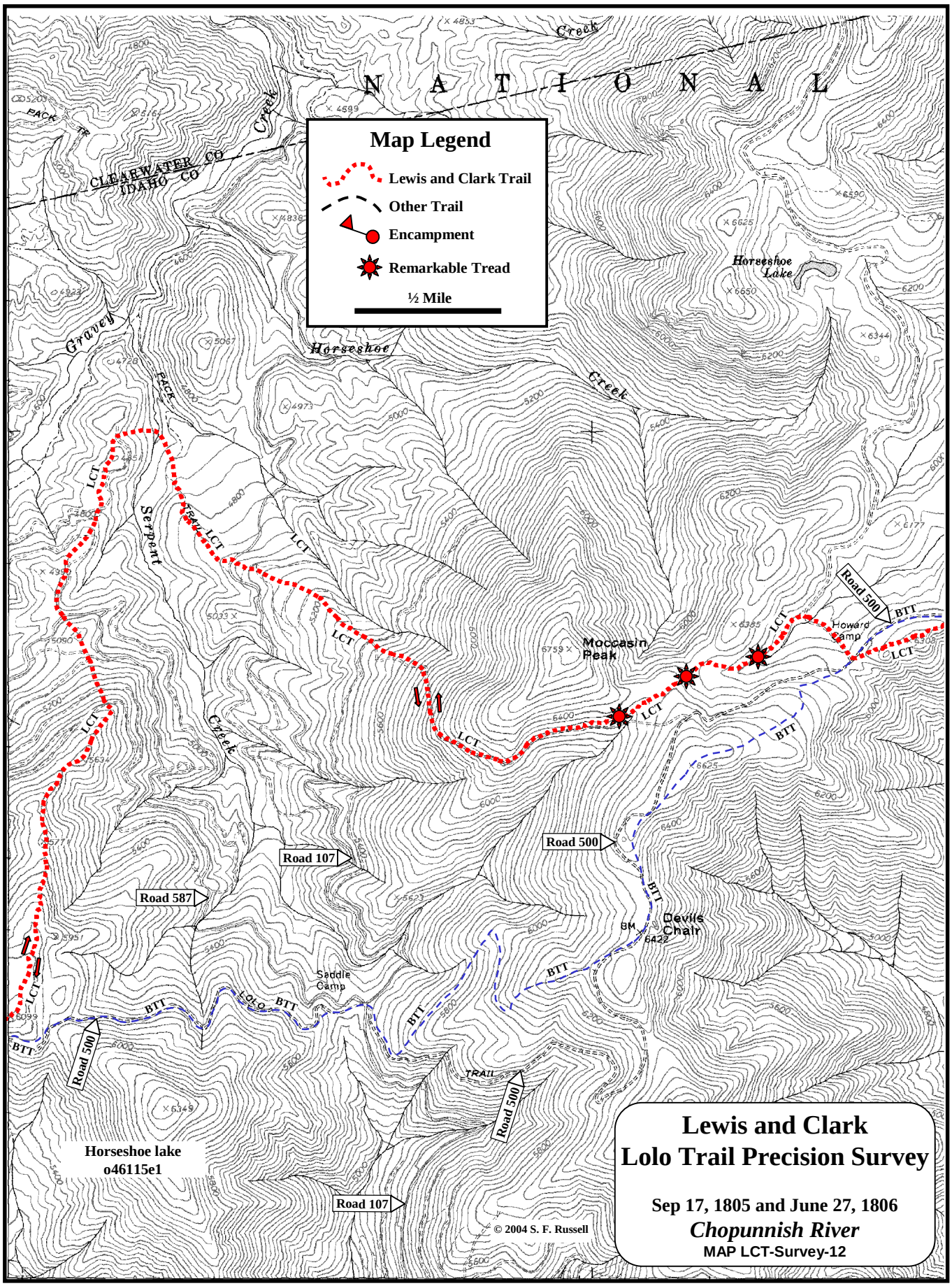

F O R E S T
Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Sep 16, 1806
Lonesome Cove Camp
Howard Creek
Moon Creek
Howard Camp
Moon Saddle
Road 500
LCT
BTT
TRAIL
BM 6441
West Fork Postoffice Cr
Lewis and Clark
Lolo Trail Precision Survey
Sep 16-17, 1805 and June 27, 1806
Lonesome Cove Camp
MAP LCT-Survey-11
Horseshoe lake
o46115e1
© 2004 S. F. Russell

LCT-Survey-12
Chopunnish River

Comments

The old trail passed through Howard Camp and went around Moccasin Peak and down into the lower end of Serpent Creek. This route was discovered by the survey party for the 1866 trail. In the 1860s, it was called Snowbridge Gulch. Today, the trail between Moccasin Peak and the west edge of the map disappears because of roads and timber harvest. Some small segments can be found to piece together in a "connect the dots" fashion. There is little to see when hiking west of Moccasin Peak until reaching the lower left edge of the map. We do not know why the trail dipped into the Gravey Creek basin but it is likely that it was a good source of fish in the right season. It also is not much longer than the Saddle Camp route, although with the latter route the trail does get to stay on the main ridge. The 1806 and 1866 trails are widely separated here and hiking the 1866 trail between Howard Camp and Saddle Camp is a very enjoyable self-discovery experience.

Self-Discovery Notes Date: People:

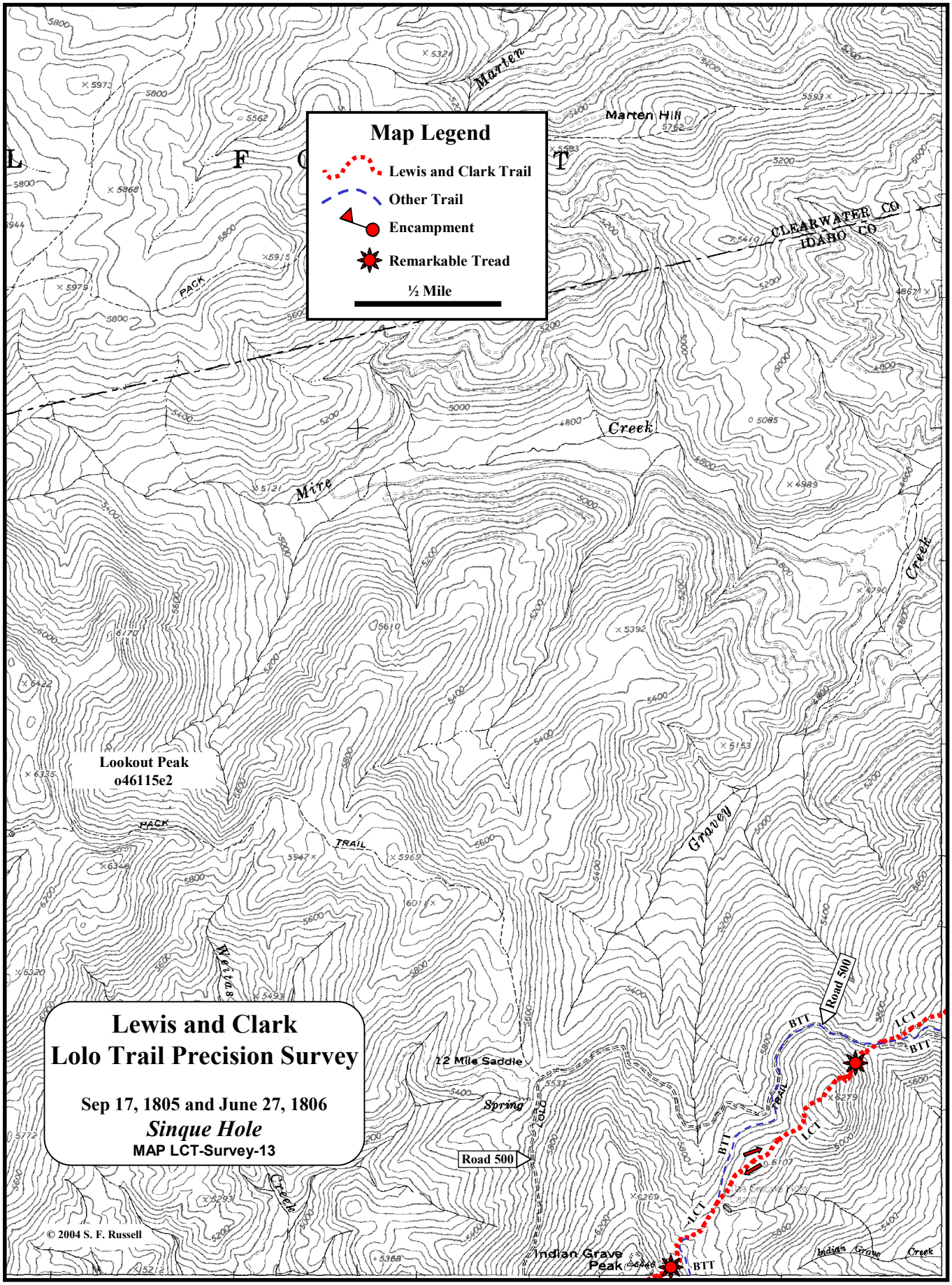

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
N A T I O N A L
CLEARWATER CO
IDAHO CO
Horseshoe Lake
Gravey Creek
Horseshoe Creek
Serpent Creek
Moccasin Peak
Howard Camp
Saddle Camp
Devils Chair
BM 6422
Road 500
Road 107
Road 587
LCT
BTT
TRAIL
Horseshoe lake
o46115e1
© 2004 S. F. Russell
Lewis and Clark
Lolo Trail Precision Survey
Sep 17, 1805 and June 27, 1806
Chopunnish River
MAP LCT-Survey-12

LCT-Survey-13
Sinque Hole

Comments

Sinque Hole is one of the few very distinct geographic features where we can positively identify its location because its appearance is much like that seen by the Corps. The 1806 trail goes in nearly a straight line over the peaks to reach Indian Grave Camp. The party did not camp at Sinque Hole although that has been the most popular conclusion of past researchers. Instead, they continued on a short distance and camped at the meadows at Indian Grave. These meadows have been a popular campsite for centuries. Sinque Hole is an enjoyable hike from the road and you can take great photos most times of the day. 12-Mile Saddle along Road 500 (not along the trails) is a very popular hunting camp in the fall. Explore the area of Indian Grave and visit the tombstone of Albert Mallikan that has been put there by his family.

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lookout Peak
o46115e2
Lewis and Clark
Lolo Trail Precision Survey
Sep 17, 1805 and June 27, 1806
Sinque Hole
MAP LCT-Survey-13
© 2004 S. F. Russell
Marten Hill
Marten
Creek
Mine
Gravey
Creek
Road 500
12 Mile Saddle
Spring
Road 500
Indian Grave Peak
Indian Grave Creek
CLEARWATER CO
IDAHO CO
PACK TRAIL
BTT
LCT

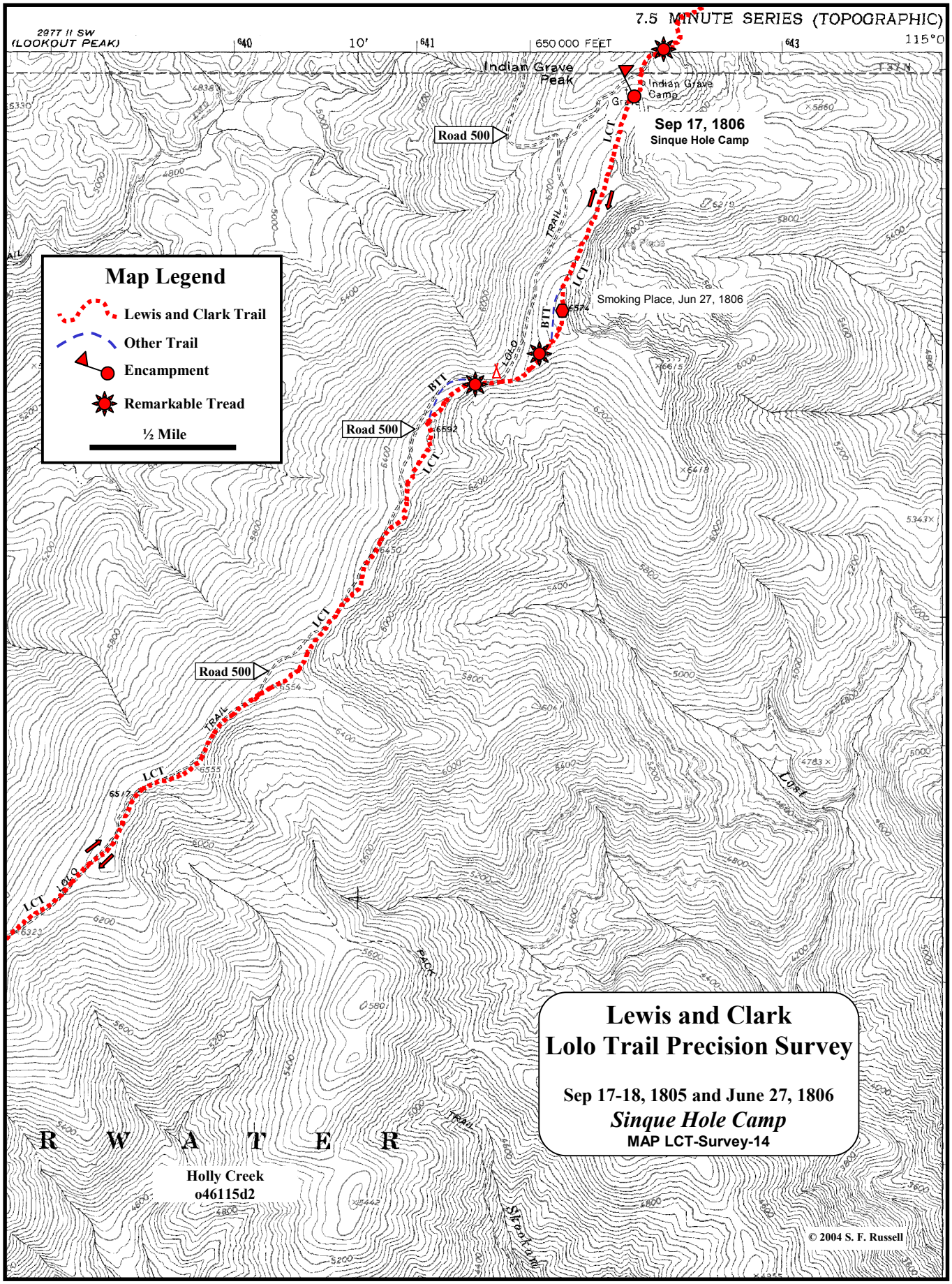
LCT-Survey-14
Sinque Hole Camp

Comments

Sinque Hole Camp is located at another of the heavily-used historic camp sites we now call Indian Grave Camp. Campsites were located to the south and east of the boggy meadow mentioned in some of the more recent historical journals. There is disagreement as to the exact location of this site but the journal descriptions and distances make it quite clear that their camp of September 17 was at Indian Grave (§15). One mile to the south of this camp is one of the most popular sites to visit - Smoking Place. The topo map labels Smoking Place a "camp" but they never camped there. It is a place held in high regard as a spiritual site by the Nez Perce so please take extra care to preserve it in its primitive state. The Corps stopped here on their return in 1806 to smoke a pipe with their Nez Perce guides. Contrary to the practices of some of the plains tribes, smoking the pipe is primarily social, not spiritual, with the Nez Perce. The 1806 and 1866 trails are quite intermixed westward from Smoking Place but they are distinct from the road in most places. At this map scale, it is hard to show that separation.

The party split up at this camp. Clark and six hunters went ahead to find lower elevations and food. The weather and lack of food had the Corps very concerned. They all joined up a few days later at Weippe Prairie.

Self-Discovery Notes Date: People:

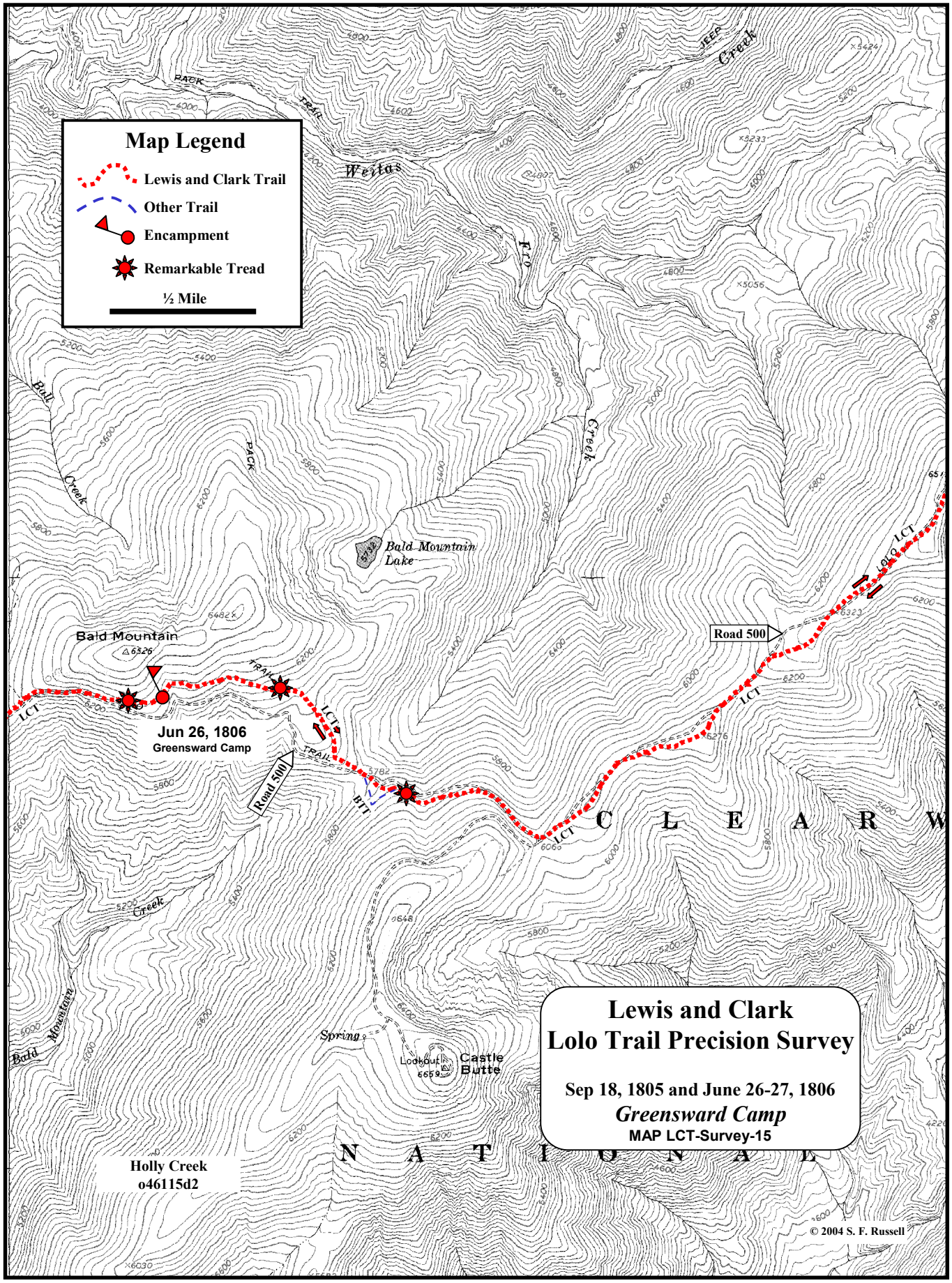

7.5 MINUTE SERIES (TOPOGRAPHIC)
2977 II SW
(LOOKOUT PEAK)
10'
650 000 FEET
115°0
Indian Grave Peak
Indian Grave Camp
Sep 17, 1806
Sinque Hole Camp
Road 500
LCT
TRAIL
BTT
Smoking Place, Jun 27, 1806
Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 17-18, 1805 and June 27, 1806
Sinque Hole Camp
MAP LCT-Survey-14
R W A T E R
Holly Creek
o46115d2
LOST
PEAK
Skeetawl
© 2004 S. F. Russell

LCT-Survey-15
Greensward Camp

Comments

On their return in 1806, the Corps stopped here on June 26 to enjoy the good water supply and new grass for the horses. Bald Mountain was the site of one of the first "ranger stations" (§16) on the Clearwater National Forest. In 1910, Ranger Roy Monroe built a one-room cabin near the Corps campsite. It has long since disappeared. In the old journals, nearly everyone stopped to camp at Bald Mountain because it had good horse feed and water. It is one of the points that can be clearly found in the journals of Lolo Trail travelers. You can hike up to the top of the mountain and get great views of the surrounding mountains and Bald Mountain Lake. If you want to hike to the lake, there is a good trail on the east side of the mountain that leaves the road at some springs and a hunting camp. The topo map label of the campsite is on the trail but too far west and away from the good water sources.

Self-Discovery Notes Date: People:

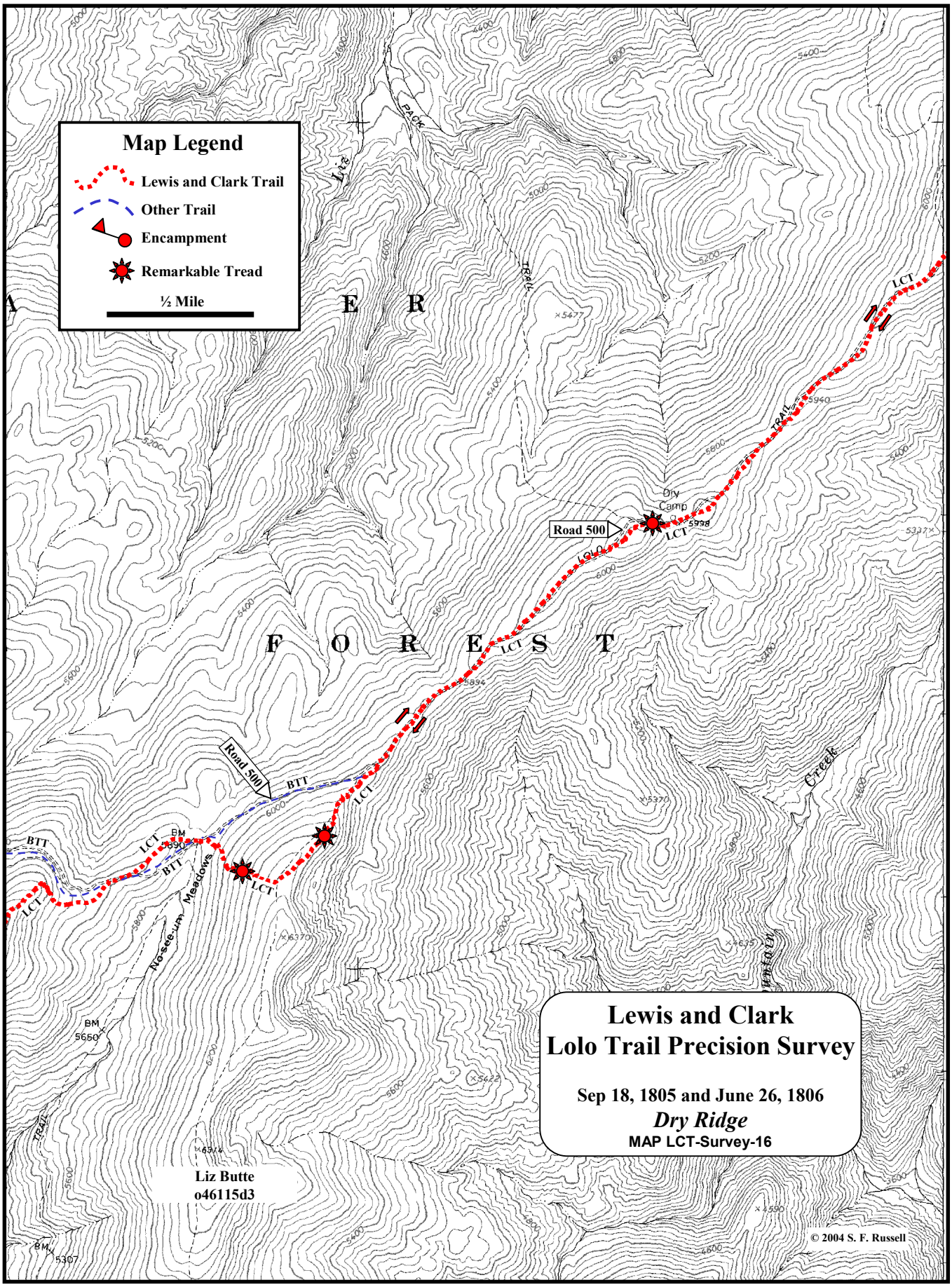

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Bald Mountain
Jun 26, 1806
Greensward Camp
Road 500
Bald Mountain Lake
Castle Butte
Lookout
6659
Spring
Holly Creek
o46115d2
Lewis and Clark
Lolo Trail Precision Survey
Sep 18, 1805 and June 26-27, 1806
Greensward Camp
MAP LCT-Survey-15
C L E A R W
N A T I O N A L
© 2004 S. F. Russell

LCT-Survey-16
Dry Ridge

Comments

The name Dry Ridge is given to this location because the trail passes no water sources. This name was suggested by modern researchers who have placed the September 18 camp of Lewis along it. Careful research shows that the actual "Dry Camp" had to be between No-see-um Meadows and Willow Ridge. The location of Dry Camp shown on the topo map is miles east of its true location. The trail eastward out of No-see-um Meadows is hard to find until you get halfway up the ridge and then it is well worn. Seeing the deep tread is worth the search. The other parts of the trail along the ridge are close to the road.

Self-Discovery Notes Date: People:

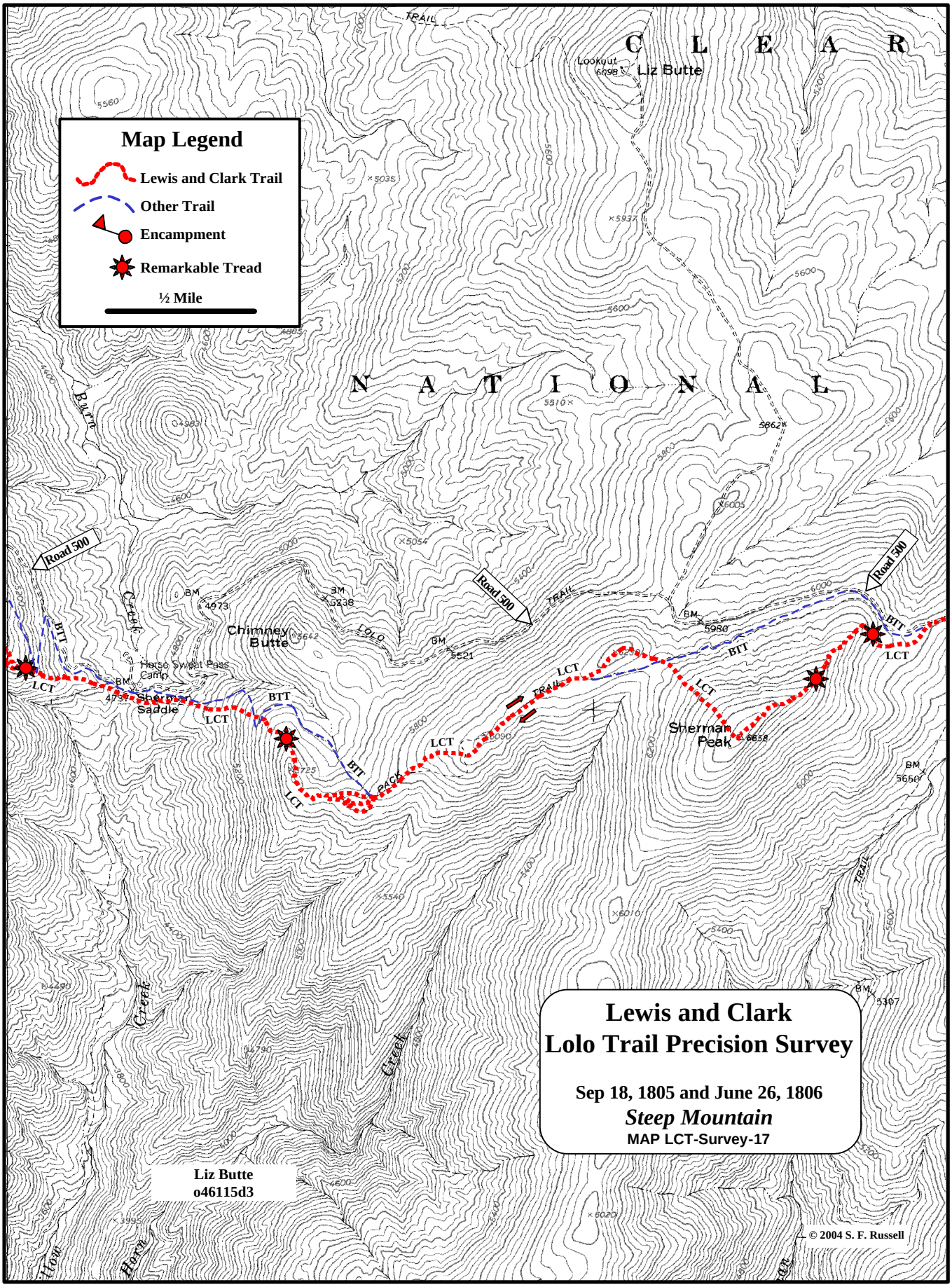

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Road 500
Dry Camp
LCT
BTT
Road 5100
Meadows
Creek
Liz Butte
o46115d3
Lewis and Clark
Lolo Trail Precision Survey
Sep 18, 1805 and June 26, 1806
Dry Ridge
MAP LCT-Survey-16
© 2004 S. F. Russell

LCT-Survey-17
Steep Mountain

Comments

Sherman Peak is the first practical location along the trail where the Nez Perce Prairie (Grangeville, Cottonwood, Nezperce, and Craigmont) can easily be seen. The old trail actually went along the north side of the peak but the Corps probably hiked up to the top of it for observations. The prairie can also be seen from Willow Ridge and Bowl Butte. Today, the view from Sherman Peak is obscured by trees due to fire control. There is a good hike along the 1866 trail from Liz Butte Road to Sherman Saddle. There was no campsite at Sherman Saddle so the topo map label "Horse Sweat Pass Camp" makes no sense. Going into Sherman Saddle from the east, the old trail goes down very steeply and is buried in heavy brush.

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
C L E A R
N A T I O N A L
Liz Butte
Lookout
6098
Road 500
Chimney Butte
Horse Sweat Pass Camp
Sherman Saddle
Sherman Peak
LCT
BTT
TRAIL
PACK
LOLO
Lewis and Clark
Lolo Trail Precision Survey
Sep 18, 1805 and June 26, 1806
Steep Mountain
MAP LCT-Survey-17
Liz Butte
o46115d3
© 2004 S. F. Russell

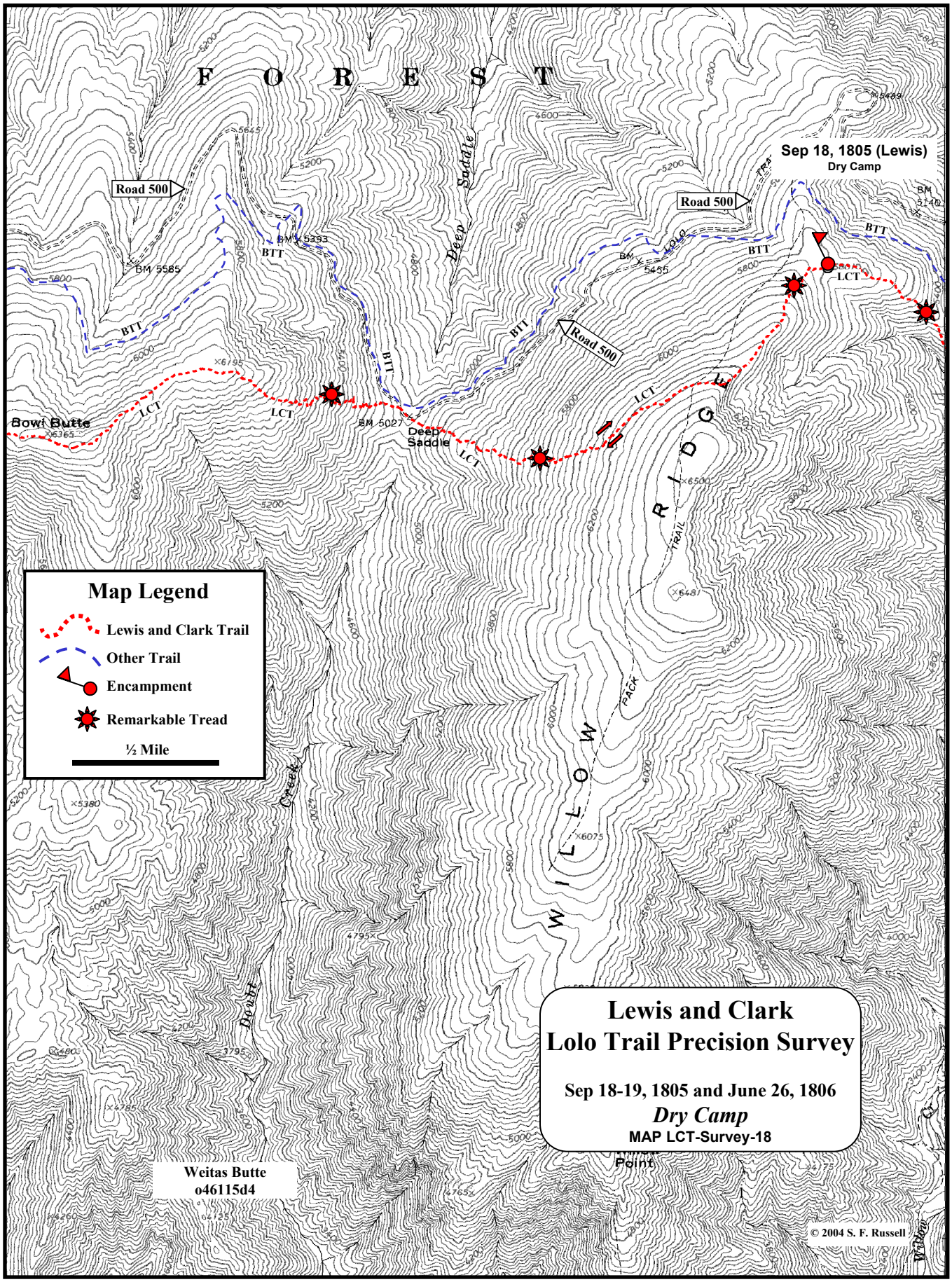
LCT-Survey-18
Dry Camp

Comments

The journal distances and descriptions conflict to such an extent that years of research have still not been able to locate Dry Camp with certainty. The location shown on this map is the result of the author's extensive statistical analysis of the journal records. Several places along the route seem to fit with the conflicting journal descriptions. The best journal record of the trail over this area is given by Whitehouse.

A Forest Service trail leads from the road up to Willow Ridge and southward to Willow Point and Hungery Creek. Early researchers (including John Peebles) have placed the trail south down Willow Ridge and into Hungery Creek. It appears that later researchers continued to accept the earlier assumptions and placed the trail on that route. Extensive hiking of Hungery Creek convinced me that the Corps overestimated the distance by a factor of 2 to 1. There is a general tendency in the journals to overestimate distances when the travel is difficult. There is excellent 1806 trail tread leading from Willow Ridge, through Deep Saddle, and over Bowl Butte. The trail is heavily brush-choked and steep but it still makes for an excellent self-discovery experience. The 1866 trail stays well to the north of the 1806 trail. The second and third locations where the party might have seen the Nez Perce Prairie is from Willow Ridge or Bowl Butte. I believe it is possible the Clark and Lewis parties might have seen it from different points.

Self-Discovery Notes Date: People:


F O R E S T
Sep 18, 1805 (Lewis)
Dry Camp
Road 500
Road 500
Road 500
BM 5585
BM 5393
BM 5455
BM 5027
Deep Saddle
Deep Saddle
BTT
LCT
Bowl Butte
R I D G E
TRAIL
PACK
W I L L O W
Creek
Dewitt
Point
Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 18-19, 1805 and June 26, 1806
Dry Camp
MAP LCT-Survey-18
Weitas Butte
o46115d4
© 2004 S. F. Russell

LCT-Survey-19
Hungery Creek

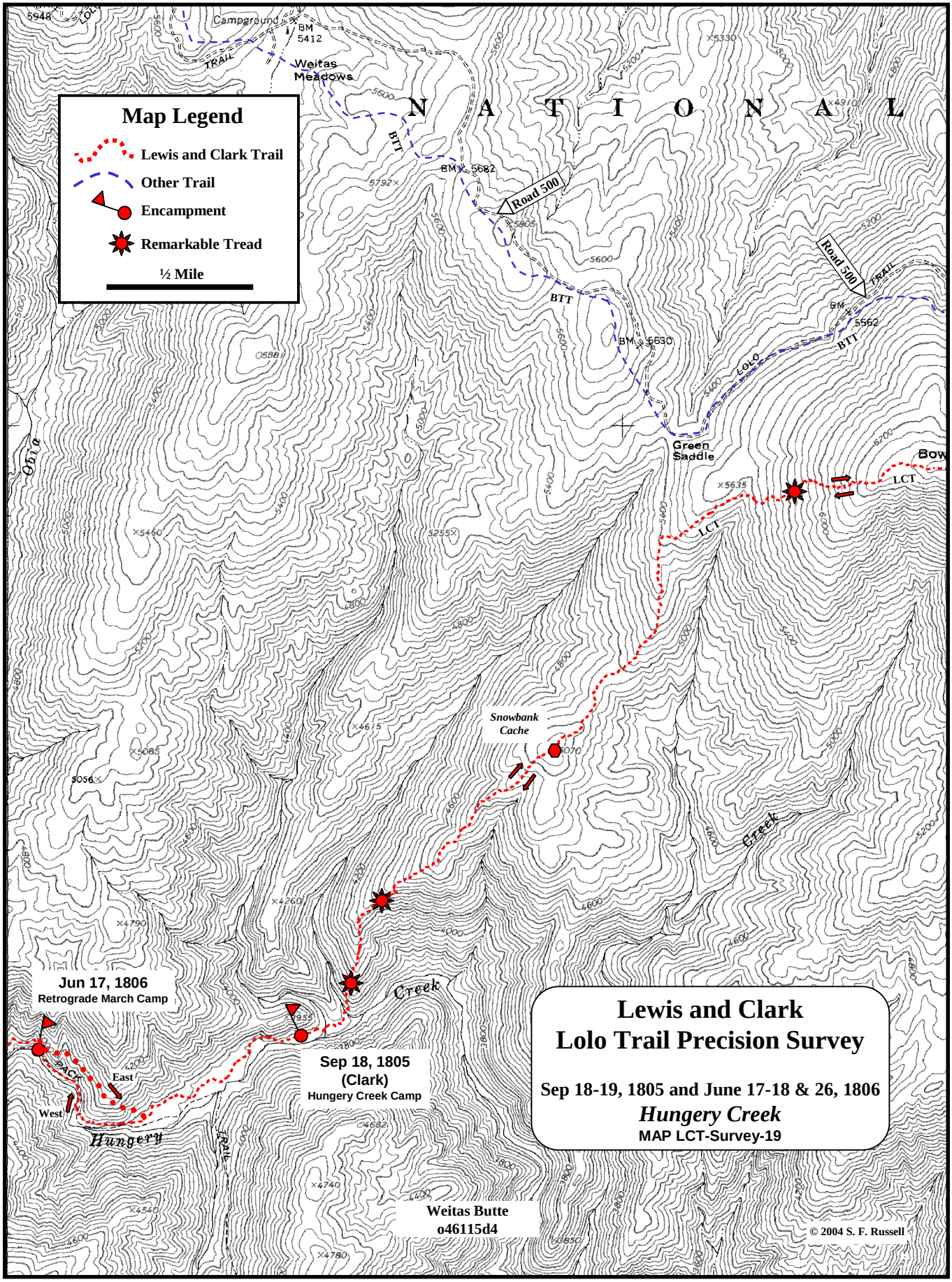
Comments

Clark and his small party arrived at Hungery Creek the evening of September 18, 1805. The distance they traveled was, by far, the longest of any day on the Lolo Trail. Lewis and the main party would arrive on the next day. The Clark camp is in a great spot along the creek with a wide, dry flat and a rock slide above it. Many people wonder why the trail would dip down into Hungery Creek instead of staying on the ridge. The most probable explanation is that the lower elevation offered relief from the deep snow. The other branch of the Northern Nez Perces Trail goes over Snowy Summit - a name that implies the obvious. This map also contains the camp the Corps had to make after their failed attempt to go eastward over the Lolo Trail the first time. The location where they cached their supplies before they retreated is labeled "Snowbank Cache."

Notice that there is a slight difference in the westward (1805) and eastward (1806) trails. On the last eastbound trip, the route went high on the ridge to avoid two crossings of the creek - one of which is very bad. The hike to Retrograde March Camp is difficult and takes a good part of a day - unless on horseback. Hiking the lower parts of Hungery Creek is not recommended except by the most experienced of bushwacking hikers. Both Retreat Camp and Portable Soup Camp are shown incorrectly on the topo map.

Retrograde March Camp <=> Retreat Camp

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Campground
BM 5412
Weitas Meadows
TRAIL
BTT
BM 5682
Road 500
BM 5630
BM 5562
Lolo
Green Saddle
LCT
Snowbank Cache
Creek
Jun 17, 1806
Retrograde March Camp
East
West
Hungery
TRAIL
Sep 18, 1805
(Clark)
Hungery Creek Camp
Weitas Butte
o46115d4
Lewis and Clark
Lolo Trail Precision Survey
Sep 18-19, 1805 and June 17-18 & 26, 1806
Hungery Creek
MAP LCT-Survey-19
© 2004 S. F. Russell

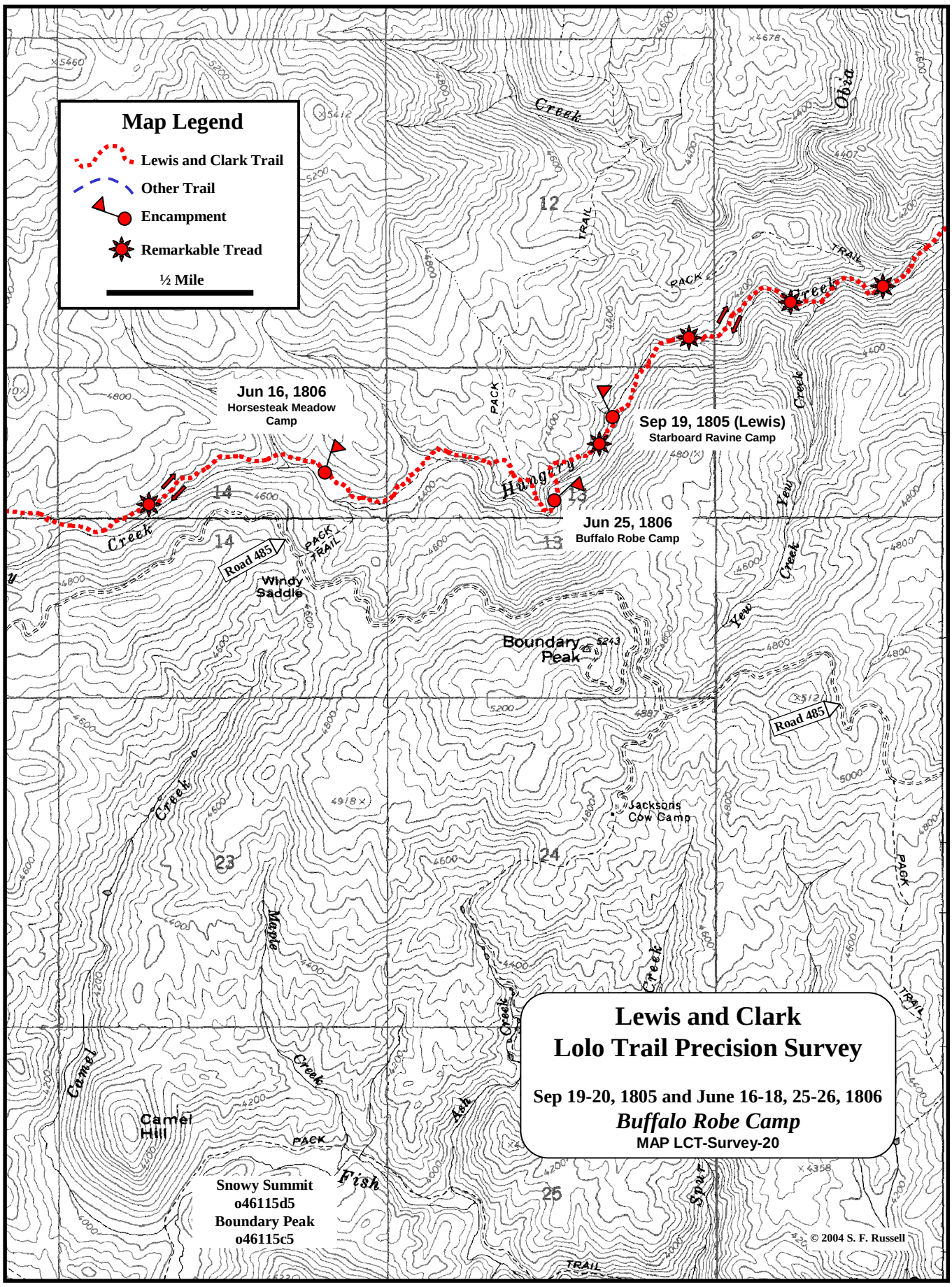
LCT-Survey-20
Buffalo Robe Camp

Comments

Hungery Creek contains a total of five campsites for the Corps because they traveled through it a total of four times. The campsites on this map are easier to reach and all have their intriguing aspects. The June 16 camp was the same place where Clark had found and killed a stray horse the previous year. It is in a large flat along the creek but there are several springs and bogs in the area so choosing a campsite would have taken some care. The June 25 camp was, unfortunately, given the name of Jerusalem Artichoke Camp by the Forest Service. The artichokes mentioned in the journals occurred on Fish Creek several miles to the southwest. This is a camp that is easily reached by carefully hiking down the ridge from the northwest. It is a small flat on the south side of the creek but it is open and dry most of the year. The September 19 camp is right along the creek in heavy, but beautifully green, underbrush. The starboard ravine runs good water. There are hunting trails all over this area that can be hiked and are reasonably maintained by the hunters. Trail 69 north out of Windy Saddle is a good, and reasonably safe, way to hike to the creek. The trail beyond the creek is not being maintained. Hungery Creek is prime mountain lion country so be aware. I have seen large "cat" tracks in the trail mud several times.

Buffalo Robe Camp <=> Jerusalem Artichoke Camp
Starboard Ravine Camp <=> Portable Soup Camp

Self-Discovery Notes Date: People:

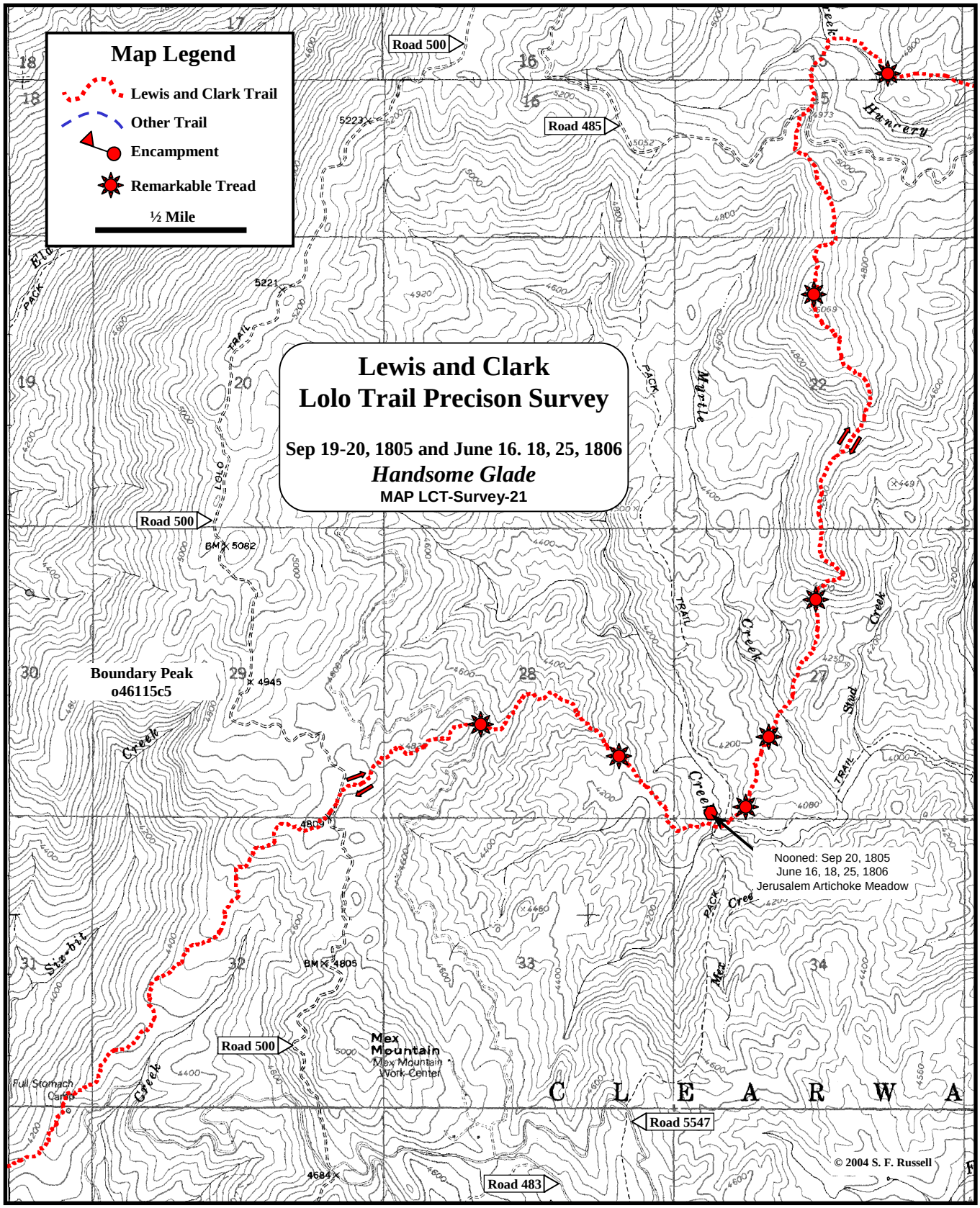

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Jun 16, 1806
Horsesteak Meadow Camp
Sep 19, 1805 (Lewis)
Starboard Ravine Camp
Jun 25, 1806
Buffalo Robe Camp
Windy Saddle
Boundary Peak
Jacksons Cow Camp
Camel Hill
Snowy Summit
o46115d5
Boundary Peak
o46115c5
Road 485
PACK TRAIL
Lewis and Clark
Lolo Trail Precision Survey
Sep 19-20, 1805 and June 16-18, 25-26, 1806
Buffalo Robe Camp
MAP LCT-Survey-20
© 2004 S. F. Russell

LCT-Survey-21
Handsome Glade

Comments

The trail tread between Hungery Creek and Fish Creek is sometimes deep and sometimes faint. Some of this is due to natural erosion but some of it is due to cattle grazing on Fish Creek. It is nearly impossible to find the trail if you start at Fish Creek because so many cow trails are present. Hiking up on the ridge makes the finding easier. Fish Creek can be accessed from roads on the north or the south. The main access trail is called the Pete King Trail. A series of beautiful meadows and a mineral lick are encountered where the trail crosses Fish Creek. An early Ranger Station was located here. This is where the Corps found the Jerusalem Artichokes. The map in this book shows the name Jerusalem Artichoke Meadow. The Corps stopped a total of four times at Fish Creek to rest and eat the noon meal. We can speculate that the Corps wished they could camp here if only the timing had been better. There is a great trail to follow from Fish Creek westward to Road 500. There are many opportunities for exploration and self-discovery in the Fish Creek area. The Full Stomach Camp label on the topo map is too far up the ridge. See the map on the next page for the true location.

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precison Survey
Sep 19-20, 1805 and June 16. 18, 25, 1806
Handsome Glade
MAP LCT-Survey-21
Road 500
Road 485
Road 5547
Road 483
Boundary Peak
o46115c5
Mex Mountain
Mex Mountain Work Center
Nooned: Sep 20, 1805
June 16, 18, 25, 1806
Jerusalem Artichoke Meadow
Full Stomach Camp
Hungery
Myrtle
Stud
Creek
Pack
Trail
Lolo
CLEARWATER
© 2004 S. F. Russell

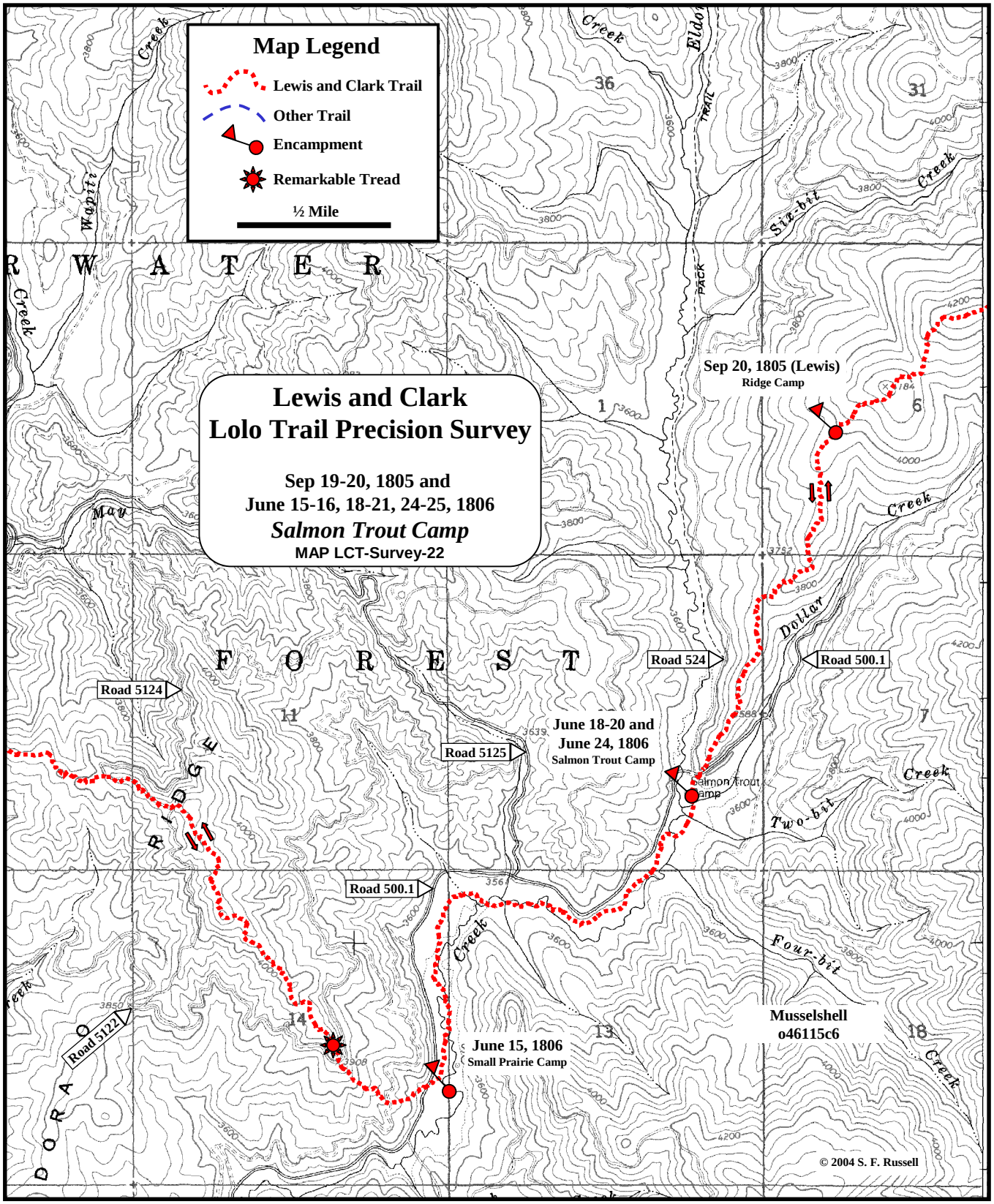
LCT-Survey-22
Salmon Trout Camp

Comments

There is a good Forest Service trail from Road 500 down a large ridge to the confluence of Dollar and Eldorado Creeks. It is a great hike and highly recommended. Lewis camped on this ridge on September 20 with the main party. Clark had already reached the Weippe Prairie and was in contact with the Nez Perce there. The Corps had two campsites on Eldorado Creek. The Salmon Trout Camp is so named because of the fish they saw in the creek. This is a good camping place - dry, and next to water and horse feed. The Small Prairie Camp is located on a small "island" of dry land surrounded by the creek and very wet meadows. To our surprise when doing the precision survey, the trail can be followed all the way along the creek. Because of errors in the topo map, the trail appears to cross the creek more than it actually does. There are four wet meadow areas to cross; the journals talk about the difficulty in traveling this route in the early spring with heavy snow melt. Salmon Trout Camp is where the Nez Perce guides lit trees on fire to insure good weather.

Ridge Camp <=> Full Stomach Camp

Self-Discovery Notes Date: People:

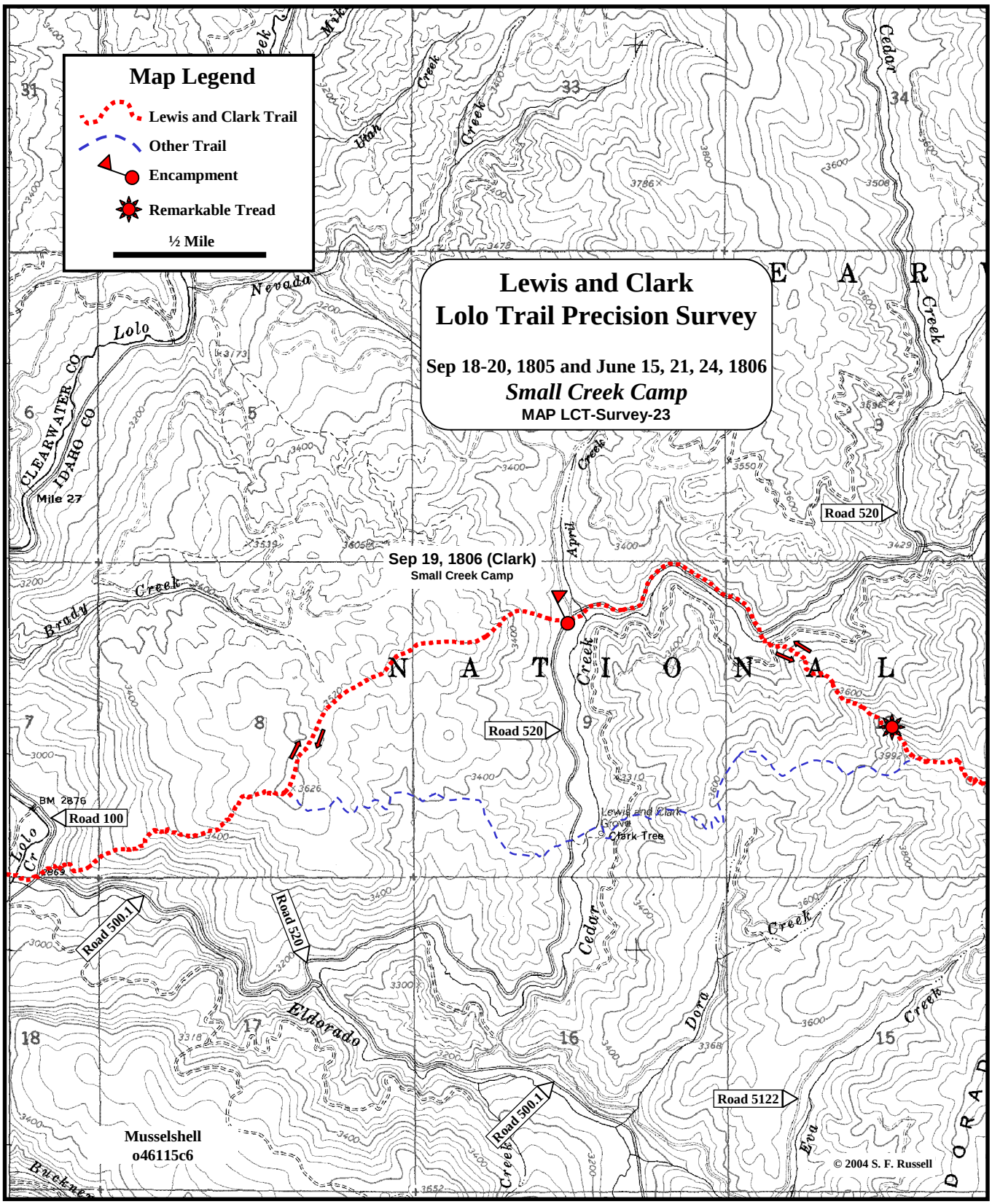

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 19-20, 1805 and
June 15-16, 18-21, 24-25, 1806
Salmon Trout Camp
MAP LCT-Survey-22
Sep 20, 1805 (Lewis)
Ridge Camp
June 18-20 and
June 24, 1806
Salmon Trout Camp
June 15, 1806
Small Prairie Camp
Musselshell
o46115c6
Road 5124
Road 5125
Road 524
Road 500.1
Road 5122
Road 500.1
Salmon Trout Camp
F O R E S T
R I D G E
D O R A
W A T E R
Elbow Trail
Pack
Six-bit
Dollar
Two-bit
Four-bit
Creek
© 2004 S. F. Russell

LCT-Survey-23
Small Creek Camp

Comments

This is the most problematic section of the entire trail. We know they crossed between Eldorado Creek and Lolo Creek but the journal accounts are scant and inaccurate here so the location was determined by following every trail in the area and deciding on the most probable route. The Forest Service built a trail along the same route and great care must be taken not to confuse it with the old trail. The entire Forest Service trail is easy to hike and a great experience through old-growth trees. The so-called "Clark Tree" was dead in 2003 and will soon pass on to its natural fate. Be sure to visit the Lewis and Clark Grove to see the large trees.

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 18-20, 1805 and June 15, 21, 24, 1806
Small Creek Camp
MAP LCT-Survey-23
Sep 19, 1806 (Clark)
Small Creek Camp
Road 520
Road 100
Road 500.1
Road 5122
Lewis and Clark Grove
Clark Tree
Musselshell
o46115c6
© 2004 S. F. Russell

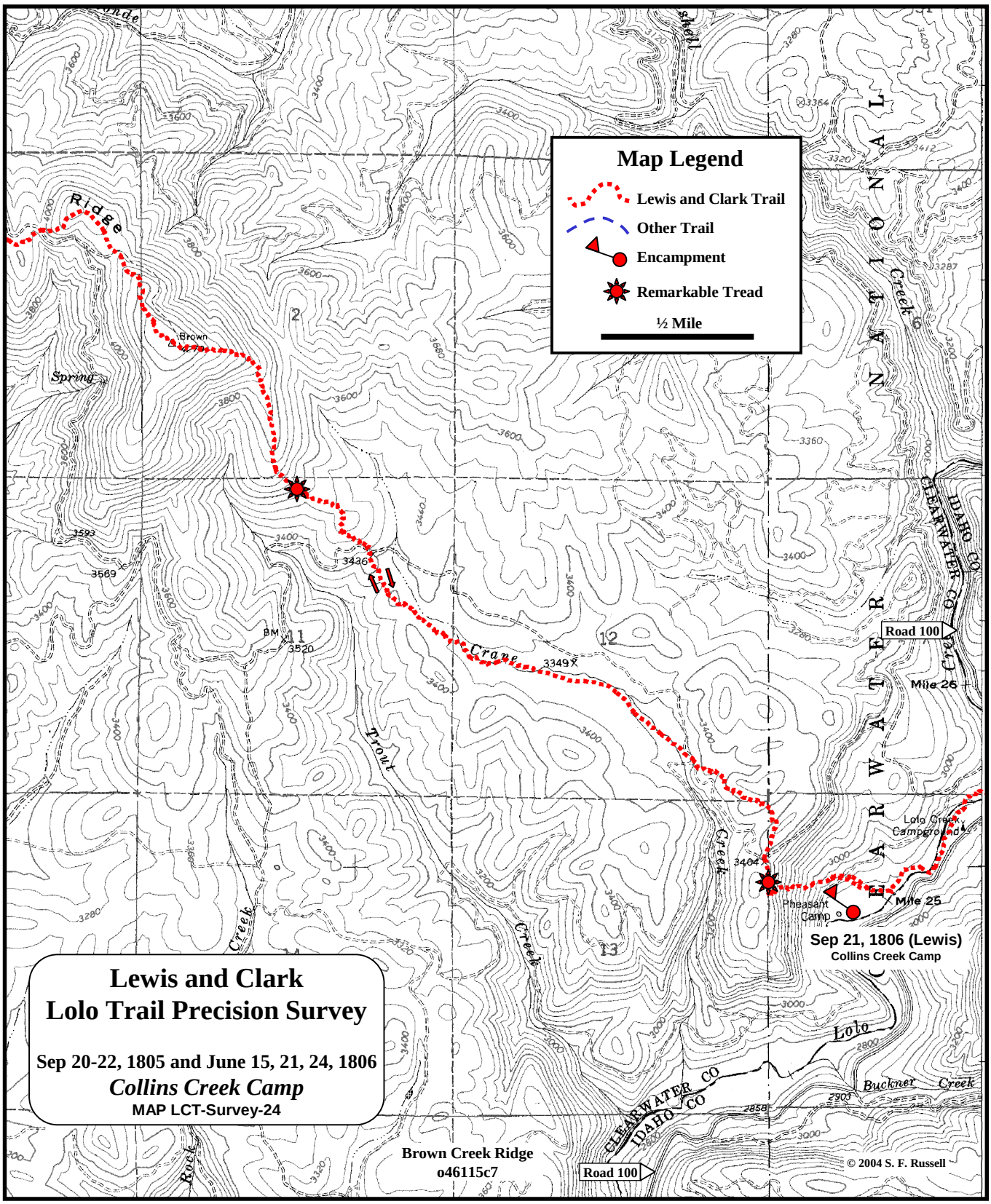
LCT-Survey-24
Collins Creek Camp

Comments

Lolo Creek was named Collins Creek to honor Private John Collins and the campsite should do the same. The trail came down to Lolo Creek and crossed it just above the mouth of Eldorado Creek. It crossed it two more times before arriving at the large meadow where the campsite is located. This site is pretty definite. It can be reached by either fording the creek or hiking in from the Bradford Bridge. There is a 4-wheel drive road that goes near it but this is not always passable. There are multiple trails out of this meadow that go up to the ridge above it. The trail chosen for the survey is the steepest of them but it is the one that connects to the heaviest tread near the top. The trail then stays on the ridge most of the way to Crane Meadow and then goes through the meadow. This area has been extensively logged and the meadow is private property so the trail experience here is of poor quality. There are some segments of trail from Crane Meadow all the way to Brown Creek Ridge but it is another matter of carefully searching and "connecting the dots." Logging and road-building activities in the future will impact the trail. The trail experience continues to be of poor quality.

Collins Creek Camp <=> Pheasant Camp

Self-Discovery Notes Date: People:

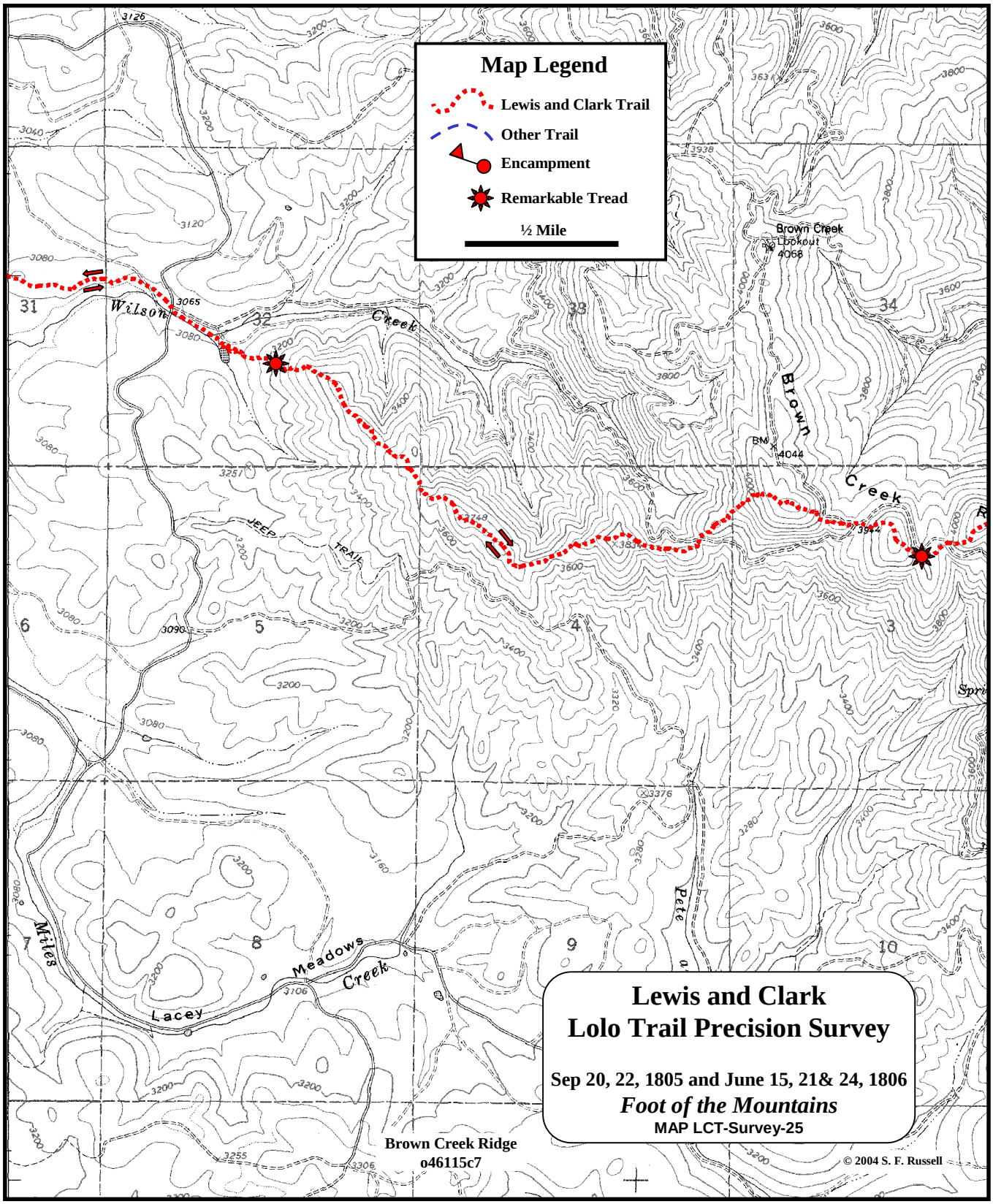

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
Sep 20-22, 1805 and June 15, 21, 24, 1806
Collins Creek Camp
MAP LCT-Survey-24
Brown Creek Ridge
o46115c7
Sep 21, 1806 (Lewis)
Collins Creek Camp
Pheasant Camp
Mile 25
Mile 26
Road 100
Lolo Creek Campground
Brown Spring
Crane
Trout
Lolo
Buckner Creek
IDAHO CO
CLEARWATER CO
LOLO TRAIL
© 2004 S. F. Russell

LCT-Survey-25
Foot of the Mountains

Comments

The trail from Brown Creek Ridge to Wilson Creek is brush-choked at the upper elevations but is enjoyable hiking at the lower elevations. Much of the trail has been impacted by road building and logging but a few short segments can still be found with careful searching. The pond at Wilson Creek reminds me of a sleepless night spent there listening to large bull frogs croak their lungs out. Beyond Wilson Creek, the trail follows a system of very low ridges. The Nez Perce had two trails from this point to the Weippe Prairie. The one followed by the Corps was the more well worn by horse traffic from Kamiah and areas south. The other went along the south side of a branch of Jim Ford Creek.

Self-Discovery Notes Date: People:

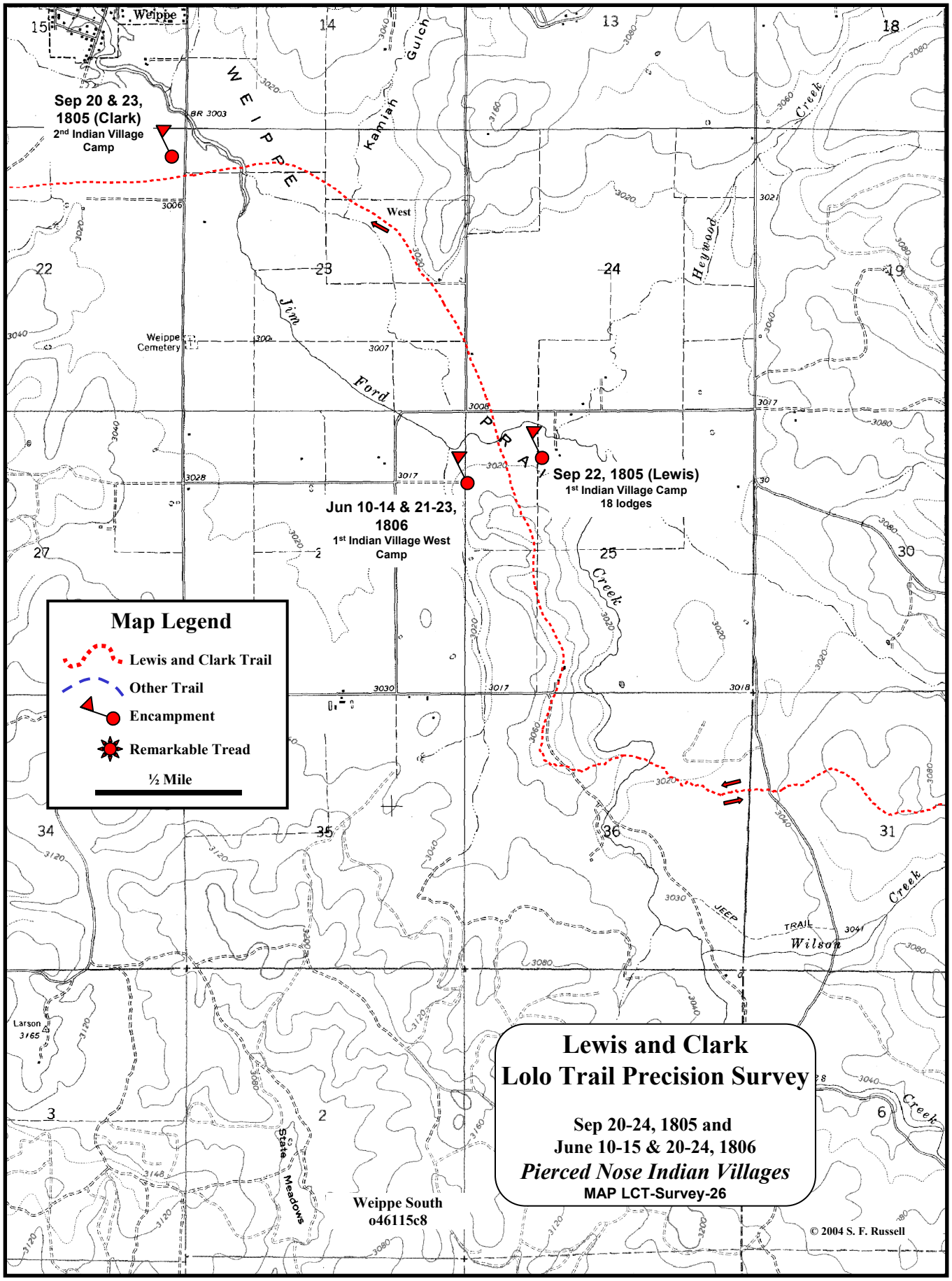

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Brown Creek Lookout 4068
Wilson Creek
Brown Creek
JEEP TRAIL
Meadows Creek
Lacey
Miles
Pete
Lewis and Clark
Lolo Trail Precision Survey
Sep 20, 22, 1805 and June 15, 21& 24, 1806
Foot of the Mountains
MAP LCT-Survey-25
Brown Creek Ridge
o46115c7
© 2004 S. F. Russell

LCT-Survey-26
Pierced Nose Indian Villages

Comments

The main trail crossed Jim Ford Creek and followed a small ridge all the way to the Weippe Prairie. Most of this route is private property and permission must be sought before hiking it. Logging, cattle, and road-building have seriously impacted the trail all along this route. The alternate route, further to the north (not followed by the Corps), still has places where the old swale can be clearly seen.

Self-Discovery Notes Date: People:

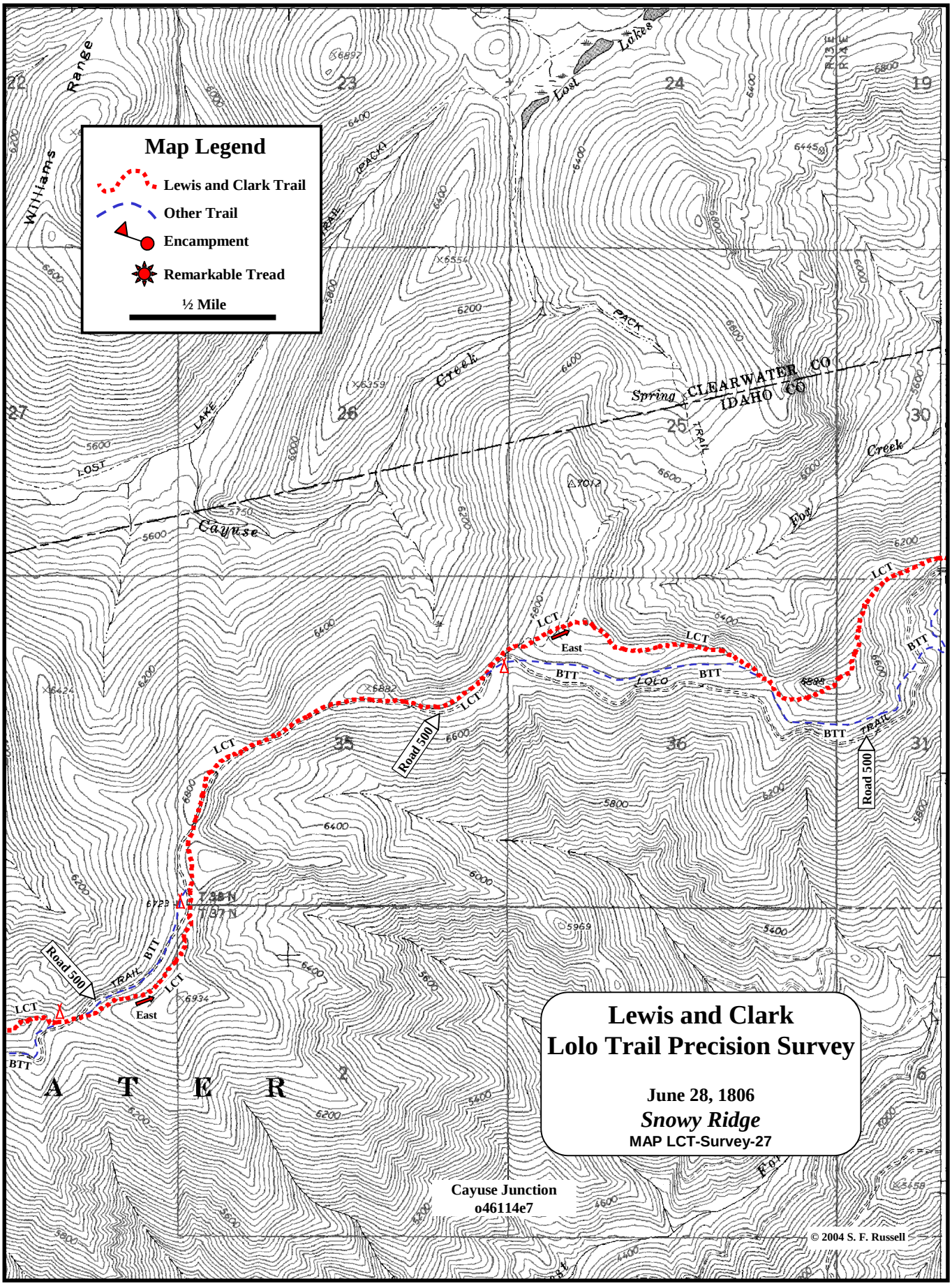

Weippe
Sep 20 & 23, 1805 (Clark)
2nd Indian Village Camp
Weippe Prairie
Kamiah Gulch
West
Jim Ford
Weippe Cemetery
Heywood Creek
Sep 22, 1805 (Lewis)
1st Indian Village Camp
18 lodges
Jun 10-14 & 21-23, 1806
1st Indian Village West Camp
Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Wilson Creek
JEEP TRAIL
Larson
State Meadows
Weippe South
o46115c8
Lewis and Clark
Lolo Trail Precision Survey
Sep 20-24, 1805 and
June 10-15 & 20-24, 1806
Pierced Nose Indian Villages
MAP LCT-Survey-26
© 2004 S. F. Russell

LCT-Survey-27
Snowy Ridge

Comments

This map covers the trail eastbound from the trail junction at Wendover Ridge. The trail is generally next to the road until reaching the east side of the map where the 1806 Trail stays on the ridge top while the 1866 Trail stays on the southern slopes. There is a trail head to Lost Lakes at a saddle along the road.

Self-Discovery Notes Date: People:

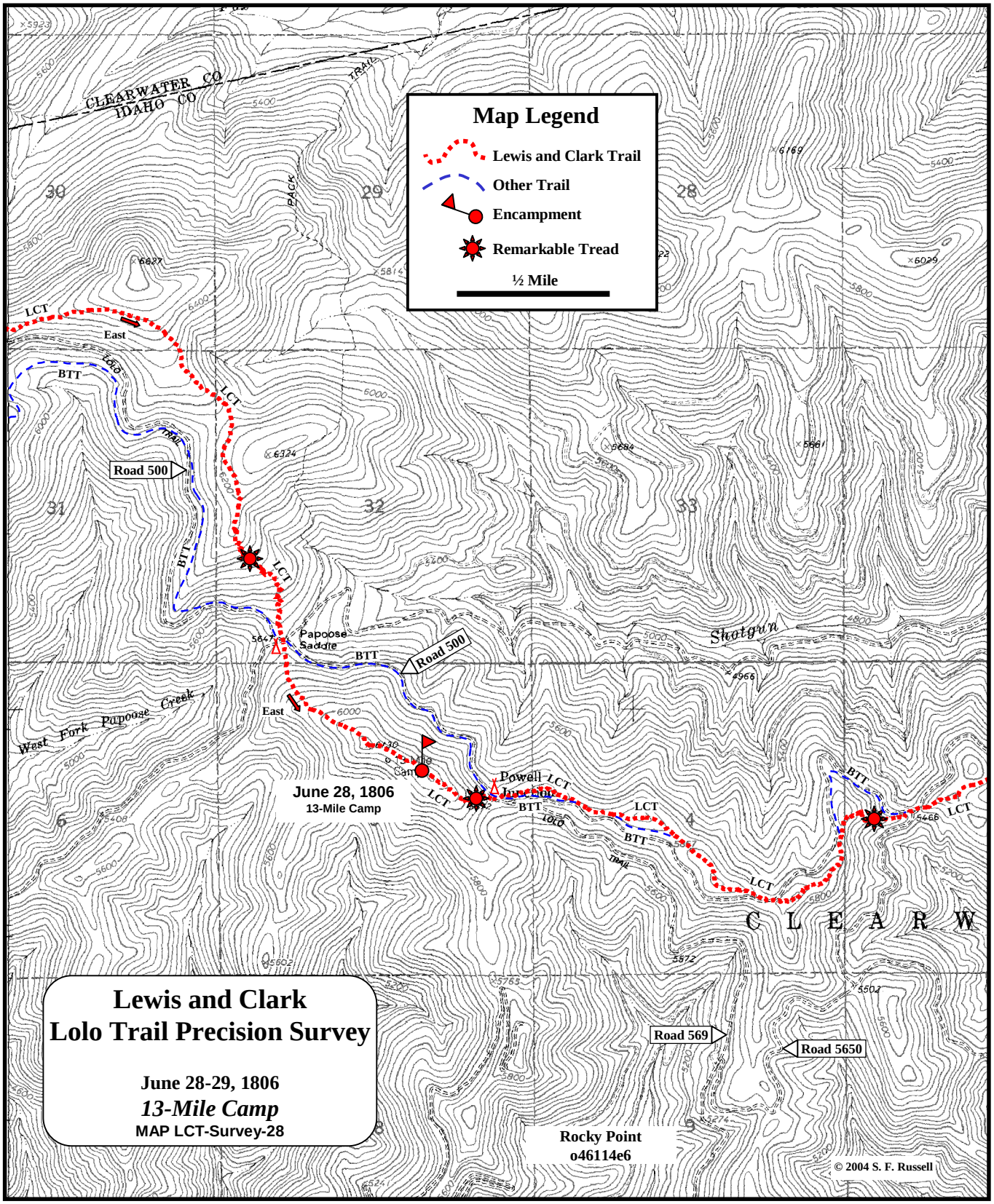

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Lewis and Clark
Lolo Trail Precision Survey
June 28, 1806
Snowy Ridge
MAP LCT-Survey-27
Cayuse Junction
o46114e7
© 2004 S. F. Russell
LCT
BTT
East
Road 500
TRAIL
LOLO
Creek
Spring
CLEARWATER CO
IDAHO CO
Lakes
Range
Williams
LOST
PACK
LAKE
Cayuse
Fog
A T E R

LCT-Survey-28
13-Mile Camp

Comments

The trail tread westward out of Papoose Saddle is deep and braided. It is a short hike to see remarkable tread. 13-Mile camp was on the ridge between Papoose Saddle and Powell Junction. The hillside in 1806 was much more barren than it is today and offered great feed for the horses. The guides recommended this as a campsite in spite of a short day because Packer Meadows was still too far ahead and there was no other place for horse feed. This area can be explored from either end and there is parking at both places. The 1866 trail followed a grade on the north side of the ridge, but east of Powell Junction it again mixed with the 1866 trail.

Self-Discovery Notes Date: People:


Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
CLEARWATER CO
IDAHO CO
LCT
East
BTT
Road 500
Papoose Saddle
West Fork Papoose Creek
June 28, 1806
13-Mile Camp
Powell Junction
Shotgun
Road 569
Road 5650
C L E A R W
Lewis and Clark
Lolo Trail Precision Survey
June 28-29, 1806
13-Mile Camp
MAP LCT-Survey-28
Rocky Point
o46114e6
© 2004 S. F. Russell

LCT-Survey-29
Ridge Terminated

Comments

East of Rocky Point, the main ridge terminated and the trail went down to the crossing of Crooked Fork. There is good trail tread to follow over the area covered by this map and it is easy to access from the road to the lookout on Rocky Point. The lookout is manned by volunteers during the summer and visitors are welcome.

Self-Discovery Notes Date: People:

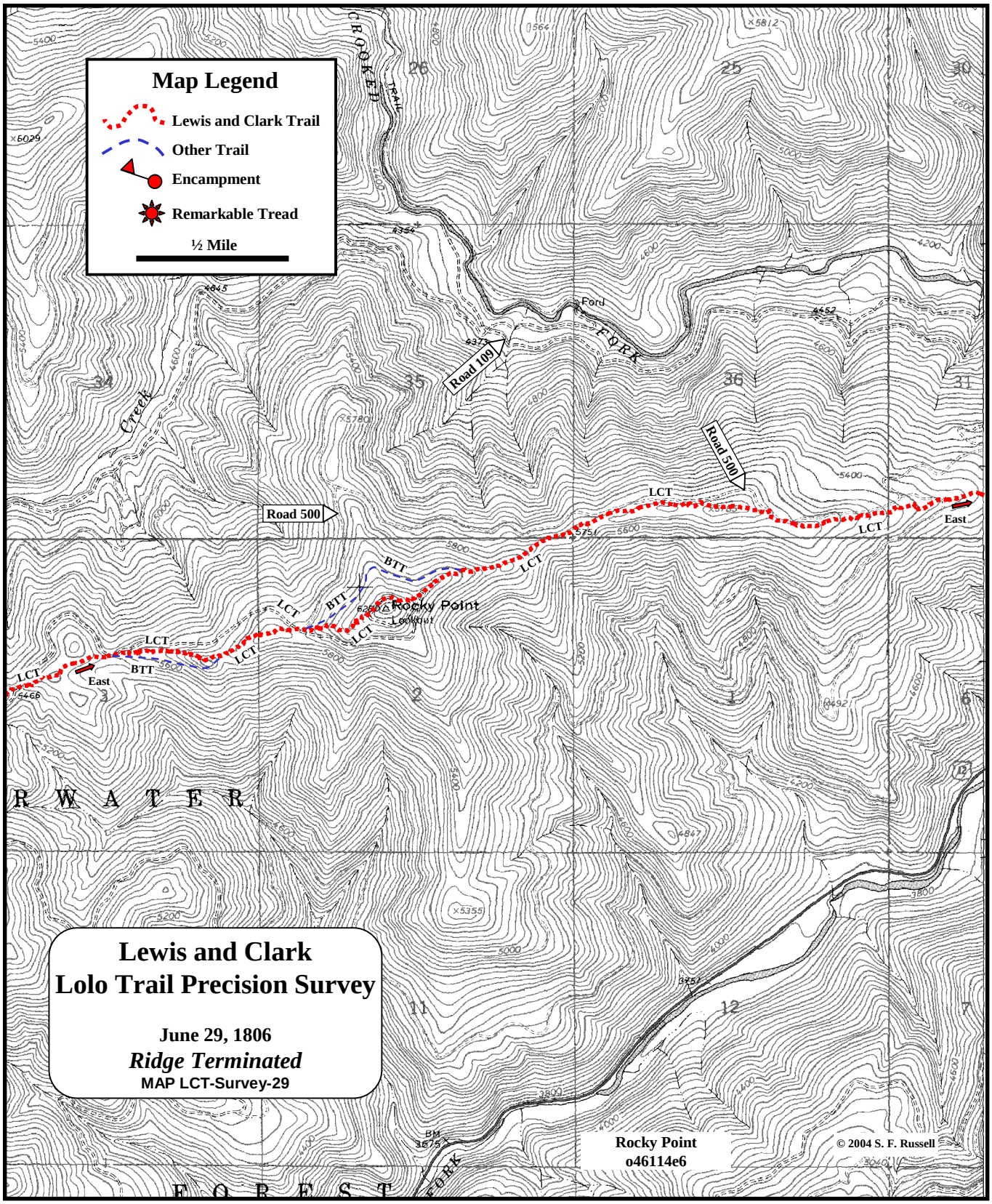

Map Legend
Lewis and Clark Trail
Other Trail
Encampment
Remarkable Tread
½ Mile
Road 109
Road 500
Road 500
Ford
FORK
Creek
CROOKED
TRAIL
LCT
East
BTT
Rocky Point
Lookout
R W A T E R
F O R E S T
Lewis and Clark
Lolo Trail Precision Survey
June 29, 1806
Ridge Terminated
MAP LCT-Survey-29
Rocky Point
o46114e6
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Photo 8. Location where the old trail crossed Pack Creek in Packer Meadows.

Photo 9. Snowbank Camp, September 15, 1805.

End Notes

§1. Coues, Elliott, *History of the Expedition under the command of Lewis and Clark*, New York, Dover Publications, reprint edition, 1965.

§2. Thwaites, Reuben Gold, ed. *Original Journals of the Lewis and Clark Expedition*, 1804-1806. 8 vols., New York: Dodd, Mead, 1904-1905; reprint, limited edition, New York: Antiquarian Press Ltd., 1959, in eight volumes.

§3. Wheeler, Olin Dunbar (1852-1925), *The Trail of Lewis and Clark 1804-1904*, 2 volumes, (Reprint Edition) New York, New York, NY, 10003: AMS Press, 1976.

§4. Harlan, John (Jack), *"History of the Lolo Trail and the Nez Perce Indians,"* Newspaper Articles by John (Jack) P. Harlan et al, Clearwater Republican and Clearwater Tribune, 1921-1938.

§5. Peebles, John J., *Lewis and Clark in Idaho: Trail and Campsites in Idaho*, (Idaho Historical Series, Number 16, December 1966) Boise, ID: Idaho Historical Society, 610 North Julia Davis Drive, (40 pgs & fold out map), 1966.

§6. Space, Ralph S. *"The Lolo Trail, A History of Events Connected with the Lolo Trail since Lewis and Clark."* Orofino, Idaho: Ralph S. Space, (65 pgs) 1970. (Fourth Printing, 1984 by Printcraft Printing Inc., Lewiston, Idaho). For further information contact the Clearwater Historical Society, Orofino, Idaho.

§7. Fazio, James, Ed., *The Mystery of Lost Trail Pass*, Lewis and Clark Trail Heritage Foundation, Great Falls, MT, 1997.

§8. Fazio, James, M. Venso, and S. F. Russell, *Across the Snowy Ranges - The Lewis and Clark Expedition in Idaho and Western Montana*, Woodland Press, Moscow, Idaho, 2001.

§9. These low-cost units were: Trimble Ensign, Trimble Scoutmaster, Garmin 12XL with differential beacon receiver, Garmin Etrex Vista with WAAS receiver.

§10. ARCVIEW is a high-end GIS tool that is widely used by government agencies for land and resource management. It enables trail plots to be documented to a very high accuracy and plotted on topographic maps or aerial photos.

§11. TOPO! is a National Geography computer map product that allows plotting of lines, points, and text over topographic maps of varying resolution.

§12. The GPS unit was a Trimble Pathfinder Pro XRS. This unit has been especially designed to log waypoint and feature data for forested, mountain environments. It has differential beacon inputs for WAAS, Coast Guard, and Satellite. It functions in severe multipath environments.

§13. This trail was very faint even 100 years ago and would have been hard to trace. With the construction of a Forest Service trail and heavy use by hunters along the same route, there is little

remaining evidence of the tread.

§14. An old map from the 1890s labels this location “Indian Monuments” so we know they were there at that time. The builders of the 1866 trail do not mention them either.

§15. Whitehouse has been misquoted in some modern sources which leads to a misplacement of the campsite. The Moulton edition of the journals gives both statements by Whitehouse about the Sinque hole. The first is : *Came about [blank] miles this day, and Camped at a Small branch on the Mountain near a round deep Sinque hole full of water.* The second is: *We came about 16 Miles this day, & encamped at a small branch on a Mountain; near a Round deep Sink hole which was full of water.* The Thwaites edition of the journals has him writing: *Came about [MS. torn] miles this day, and Camped at a Small branch on the Mountain near a round deep Sinque hole full of water.* Notice that Whitehouse writes “near” a round sinque hole. Some researchers and modern sources quote Whitehouse as saying that they camped at a round Sinque hole which contributes to a misplacement of the camp.

§16. These early ranger stations were often a small log cabin and not the large complexes we have today.

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Lewis and Clark - Lolo Trail Precision Survey

Steve F. Russell

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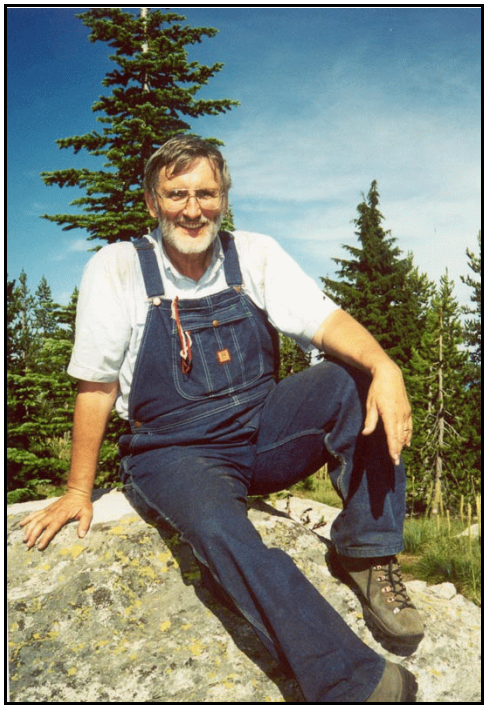
All photographs and maps are by the author.

About the Author



Steve F. Russell was born in Lewiston, Idaho, and grew up along the Lewis and Clark Trail in north central Idaho and western Montana. He is on the faculty of Electrical and Computer Engineering at Iowa State University which gives him several weeks in the summer to explore the historic trails of the area. In 1984, he began a 17-year research project to determine the exact location of the Lewis and Clark Trail between the rivers. Spending summers hiking and documenting the old trails and winter evenings processing the data and making maps, he has now amassed the largest collection of Lolo Trail research materials in existence. He has done research on other historic trails such as the Virginia City and Lewiston Wagon Road, the Mullan Wagon Road, the Northern and Southern Nez Perce Trails, and the Carroll Trail.

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